ENGINEERING and MINING JOURNAL.

VOL. XXVI., No. 18.

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NOTE.—Communications relative to the editorial management should be addressed to Mr. ROTHWELL, P. O. Box 4404, New York. Articles written by Mr. RAYMOND will be signed thus *

THE SCIENTIFIC PUBLISHING CO., PUBLISHERS,
27 Park Place, New York.

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NOTICE.

THEODORE F. VAN WAGENEN, of Denver, Colo., is no longer connected with the ENGINEERING AND MINING JOURNAL or the Scientific Publishing Company, and is not authorized to collect moneys or transact any business whatever for the same.

THE *Mining Record*, with a no doubt sincere desire to give news, and with its usual degree of accuracy, makes the following statement:

"The suit entered by the Scientific Publishing Company against T. L. Van Wagenen, in the Colorado courts, has been decided in favor of the defendant (Van Wagenen), thus substantially vindicating him in the business issue with the ENGINEERING AND MINING JOURNAL."

The suit referred to was brought by T. F. VAN WAGENEN against the Scientific Publishing Company, and damages were claimed for $8500. Though the plaintiff had the advantage of being at home, and the defendant the great disadvantage of being a foreign (New York) corporation, unrepresented except by counsel, the jury stood nine for acquittal of the Company and three for the plaintiff, and finally accorded the plaintiff, VAN WAGENEN, *one dollar* damages. Though this disposes of Mr. VAN WAGENEN'S suit against the Scientific Publishing Company, it by no means disposes of the Company's claims against VAN WAGENEN (which will be urged in due time); nor does it by any means vindicate Mr. VAN WAGENEN'S course or actions during the term of his employment by the Scientific Publishing Company.

FATHER ROOME ON THOSE "UPSTART SCHEMERS," INVENTORS.

Every one in the gas fraternity acknowledges the supremacy of General CHARLES—or, as he is familiarly styled, Father—ROOME. Indeed, so long has this venerable gentleman occupied the position of chief prophet, priest, and king in the fraternity that the mind of man goeth not back to the time when he was not the sole oracle; some indeed have even supposed that he originally appeared on this stage in pre-Adamic times, and was contemporaneous with the other fossils of a long-forgotten past. Naturally enough, the later-day ideas of progress and invention are highly distasteful to this conservative patriarch, and the very mention of the possibility of ignorance and wastefulness in the old-fashioned method of making illuminating gas, and the mere suggestion of a need for more skill and knowledge in the craft and for better methods of manufacture, raise his righteous ire as though he were only an ordinary descendant of ADAM. It is no wonder, therefore, that when one of those sacrilegious modern inventions, the newspaper reporter, recently interviewed this prehistoric personage, and intimated not only that the ancient method of making illuminating gas would have to be improved to keep up with the times, but even went so far as to assert that the very head devil of this pestiferous brood of inventors, that young man EDISON, claims to have solved the problem of furnishing light to our dwellings and streets by means of electricity at a small fraction of the present cost of coal-gas, the wrath of the Ancient broke forth, and he relieved his prophetic soul thus: "Old as I am—I have been in the gas business for forty [thousand?] years—I shall yet put all these upstart schemers (inventors) under my feet."

Now, this authoritative dictum of the great head oracle of the gas fraternity grieves us immensely. We have always had a lurking hope and expectation that even Father ROOME'S methods of gas-making might eventually be improved, and the cost of light be reduced. Alas! must we now renounce this hope? But what if, in the face of this prophecy, EDISON, or LOWE, or STRONG should actually give us better light than we now have, and for less money? Alas! alas! our cherished faith in the ancient seer might then be shaken, and we might even waver in our enthusiastic admiration for DARWIN'S theory of "the survival of the fittest." Oh! what have you to answer for, ye "upstart schemers!"

THE MINIATURE EDITION OF THE ENGINEERING AND MINING JOURNAL.

As already announced, the publishers of the ENGINEERING AND MINING JOURNAL intend issuing, November 23d, in addition to the regular issue to our subscribers, a magnificent Miniature Edition of the JOURNAL. This beautiful work of art is being prepared at great expense; it will contain probably 60 or 70 pages, including a large number of magnificent engravings of notable engineering works, mines, etc., and a mass of varied information that will cause it to be preserved and treasured by those who receive it as a marvel of typography and ingenuity.

Owing to the great amount of work involved in producing the plates, those desiring to profit by this unequaled opportunity for making known their wares to all the world are invited to send in their advertisements at as early a day as possible, that they may receive that care necessary to give them an attractive appearance. *No extra charge is made* for advertising in this entire edition, but no card will be inserted unless it be under contract for at least three months' issue in the JOURNAL.

Orders for copies of this Miniature Edition should be sent in at once, accompanied by the cash. Copies will be sent, postage-paid, for 10 cents each.

The edition will be 100,000 copies, and large extra numbers are already ordered by advertisers and others for distribution to their patrons in al parts of the globe. The publishers will undertake, in the interest of manufacturers and others ordering extra copies. the mailing to special industries in any part of the world; full lists of all classes of business having been secured for this purpose.

News-dealers and others throughout the mining regions and in large cities are requested to send for specimen pages of the Miniature.

The following remarks from our great contemporary are to the point:

"Business men in these days are not content to wait behind their counters for customers, but they go out into the world, and by the aid of the newspaper cry out their wares to thousands upon thousands of people who can be reached in no other way. That it is profitable to advertise is shown by the steady increase of such notices, and it has now become one of the maxims of mercantile life that success in business can only be attained by judicious and persistent use of the columns of the newspaper."—*N. Y. Herald.*

HORICON AND CHAMPLAIN.

The Institute Excursions.

I.

Well spake the fair lady who shall be nameless here, when she said, "I do love scenery—*it adds so!*" And when to this addition we allow good company to add likewise, and throw in music and moonlight, science and small-talk, the sum total of human enjoyment is more than added; it is multiplied. For what is multiplication but a way of adding a great many times at once? And what was the accumulation of pleasures at the recent meeting of the Institute of Mining Engineers but multiplication run mad—geometrical progression, involution, integration, summation of infinite series, what climacteric form of calculus you please? Was not the very first glimpse of Horicon too lovely for any thing, and didn't it keep on getting lovelier every hour? But Science declares that without eyes there would be no beauty, since sight is but a subjective affection of the perceiving spirit. Very well; were there not eyes galore—and such eyes!—and was there not "affection," subjective or other? In short, name whatever belongs to perfectness of enjoyment, and consider us as hereby asserting it to have been conspicuously present on the days we celebrate.

It is, at first thought, a mystery, that people hasten back to the city in September, and miss the glories of October in the country. On further consideration, however, it becomes evident that this matchless autumnal weather, which forms the chief glory of our Atlantic climate, is the pleasantest of the year in town as well as field. If it be granted that folks must return to town at some time or other, they can not be blamed for so doing at the time when courts, churches, and fall styles open. "We must have *some* fair weather for shopping, you know," says She; and She is right. Yet if one would only abide on Horicon, loveliest of all lakes, till the fall styles had opened *there*, we fancy one might learn a thing or two not known before, nor dreamed, concerning tints and outlines, draperies and shadows. To float upon these pellucid waters, and watch the alternations of cloud and sun along the mountain sides,

wrapped from foot to crown in robes of glory, is itself an education in art. Nobody has seen Horicon who has not seen it when the maple, birch, ash, poplar, and their companions have doffed the green disguises which they wear in summer, and come out in their true colors. All through the sultry days they stand in their dominoes, whispering together, and waiting for the signal. When that is given, the transformation takes place, and the congregation of princes and nobles is revealed. They whisper no more, in shy conspiracy. Either they shout aloud, greeting the stormy processions of clouds, or they stand in motionless silence, and look at their own splendor in the lake.

Nor has any one seen Horicon who has merely sailed through it, on the way from somewhere to elsewhere. No doubt such a journey is enough to convince the tourist that no lovelier scene exists on earth; yet the unique beauties of the lake do not appear upon such a survey. From the deck of the steamer, the shore-line appears to be tolerably straight and continuous. Here and there a jutting point, perhaps; here and there a bay: but scarcely a hint of the innumerable coves, land-locked harbors, and clustering archipelagoes, which render a coasting-voyage a series of perpetual surprises, each more exquisite than the last. The Institute excursion party enjoyed the great advantage of being carried in this way up one shore of the lake and down the other, and into and out of many a secluded passage, invisible from the main channel. Who will ever forget Paradise Bay, in entering which, we seemed to graze the rocks and trees on either hand, and out of which there appeared no way, until by some skillful trick of piloting, marvelous to the uninitiated, the steamer turned upon her heel, and sped through a still narrower channel?

When the dry official report, published last week, narrates that the Institute spent the night at Rogers' Rock Hotel, and the following day in an excursion upon the lake, it just tells nothing at all. And when an unfortunate editor undertakes to fill out the meager outline, he has no better luck. We notice that Brother B., of the *Iron Age*, in his admirable account of the Institute meeting, disposes of the Horicon voyage very briefly. His feelings are too much for his pen. There is indeed no way to visit Horicon in imagination. Words will not take you there; dreams would only drop you half-way. The only effective vehicles are the boats, cars, and stages, which will carry you in person. Whoever you are, poet, painter, oarsman, mountain-climber, honey-mooner, philosopher, cynic, take our advice and go. Go to the Rogers' Rock Hotel; ask the host to treat you as well as he treated the Institute of Mining Engineers. Go on the lake. Go and live for a while in one of the picturesque cottages that Mr. CYRUS BUTLER has just built at Hulett's Landing, or in one of those he is going to build at Paradise Bay. Or lodge in his floating hotel (the hull of the Minnehaha), now moored at the foot of Black Mountain, the loftiest and most picturesque summit of this neighborhood. Ride or climb, through Mr. BUTLER'S rustic gateway, and up his excellent bridle-path, to the top of that stately height. Take your stand where Mr. BUTLER is going to put, next season, a hotel for the benefit of persons possessed of romance or hay-fever. See Horicon at your feet, dotted with islands and flashing like silver; see the billowy ranges and sharp crests of the Adirondacks on one side, the Champlain basin and the Green Mountains on the other, and wonder that so wild and beautiful a region has lain so near the great cities so long, and is still so little visited, while thousands ransack the other hemisphere for scenes less fair. And if your good fortune should bring you to meet Mr. CYRUS BUTLER himself, lay hold of him; let him not go. He is the *Genius Loci*, and if you love Horicon, he will love you. But beware that you call not the place, in his hearing, by the vulgar British name of Lake George. Since ETHAN ALLEN took Ticonderoga, no mortgage of British sovereignty rests on this realm, and Horicon, "the silver water," the early Indian name, is to be reëstablished, says Mr. BUTLER, if it takes another revolution to do it. We have indeed heard that the Horicon of the Indians was not this lake at all; that the Indian name of Lake Geo—we mean Horicon—was something less poetic, meaning, in fact, the tail of Lake Champlain. But that is neither here nor there. Just travel around the lake once with CYRUS BUTLER, and you'll believe whatever he tells you, and approve whatever he desires.

Concerning the operations of the Horicon Iron Company and the American Graphite Company, of which Mr. BUTLER is President, we ought to say a word in passing, though useful information is not specially our present purpose. The former company is engaged in manufacturing, at Ticonderoga, by a modification of the Catalan forge process, blooms which are expected to prove equal in uniform excellence to the Swedish and Norway irons. The peculiarities of the process are chiefly the two following: The ore, instead of being thrown cold upon the forge-fire, descends through a retort or chamber in the rear, into which it has been charged, mixed with charcoal "braize." By the time it has reached the bottom of this chamber, and is raked forward into the fire, it is not only thoroughly heated, but also reduced to metallic sponge. The chamber is heated by the flame-products of the forge-fire, and also by the combustion of carbonic oxide, generated from the ore and braize, and escaping through ports in the wall, to burn in the surrounding flue. This arrangement is the first peculiarity of the process. The second is the charging of the very fine ore-dust into another chamber, where it is pre-heated, and then taken by a screw conveyer and carried through a hollow journal and a small gas-pipe, into the tuyere, which conveys it into the forge-fire, and deposits it upon the surface of the loup. In this way a great loss of fine ore is avoided, and a saving of fuel is effected. There is still another peculiarity in these works, affecting the subsequent manipulation of the blooms. The loup is introduced into a Sweet's furnace, and thoroughly heated before shingling. In this way, it is claimed, a more complete removal of cinder, etc., is secured. Certainly the blooms and billets which we saw treated exhibited great solidity and uniformity under the hammer. The capacity of the four fires now in operation is about four tons daily—eight loups being taken out of each during the twenty-four hours. The works have been but a few days in operation on this plan, but the experiment promises to be successful, and, if commercial results warrant, the capacity will be at least doubled. The ore now used is the Bessemer magnetite of the Crown Point Iron Company; but the Horicon Company possesses extensive deposits of its own, upon which it can fall back if necessary.

The works of the Graphite Company are close by. Here the graphite ore, varying in richness from six per cent up to approximate purity, is crushed and buddled, the "tailings" being in this case the valuable portion. The process is a pretty illustration of ordinary concentration reversed. The product is exclusively taken by the Joseph Dixon Crucible Company, of Jersey City. The method pursued in further refining it, and in the manufacture of the now celebrated Dixon pencil from it, is described in KNIGHT'S *Mechanical Dictionary*. Mr. HOOPER, Superintendent of both the iron and the graphite works, is evidently an ingenious inventor; and to him many of the admirable contrivances seen in both places are due. Mr. HOOPER has designed also a variety of machines for the concentration of iron and other ores.

Before closing this article, we must not fail to notice the visit of the Institute to old Fort Ticonderoga. Here it was that several of the members, who had been hastily "cramming" from guide-books, came out strong in historical reminiscences for the benefit of the ladies. It was truly edifying to hear these gentlemen firing their volleys of grape and canister in the form of facts. Information just oozed out of them, as MARK TWAIN says, "like ottar of roses out of an otter." Here was the spot where ETHAN ALLEN woke up MONTCALM, and wouldn't give him his pantaloons until he had surrendered. Yonder, BURGOYNE posted himself to bombard the ill-fated ABERCROMBIE. This narrow part of the lake GEORGE WASHINGTON crossed, standing on one leg in a boat, with a man to push away the ice—but at this point the historians are put to shame; for the ladies had read the guide-books themselves, and knew the story better. It was a pity; if a few of us had been allowed to go on, we could have piled that place three deep with sacred and patriotic associations. Any how, the ruins are picturesque; and the hole through which ETHAN thrust his head when he said Good Morning (and some other things) to whomsoever it concerned, is plain enough. Nothing, indeed, is less diminished by the tooth of Time than a hole.

*

NEW PUBLICATIONS.

PENNSYLVANIA SECOND GEOLOGICAL SURVEY. VOLUME Q. *Report of Progress in the Beaver River District of the Bituminous Coal-Fields of Western Pennsylvania.* By I. C. WHITE. Harrisburg, 1878.

Prof. WHITE has had charge, as Assistant Geologist, of the district lying north of the Ohio River and between Pittsburg and the Ohio State line. In the present report, the geology of parts of three counties is described, namely, Southern Butler, Northern Alleghany, and Northern Beaver. The rest of Butler County has not yet been surveyed. The rest of Beaver County is treated by Prof. WHITE in Prof. STEVENSON'S Report K, on Greene and Washington. Southern Alleghany will be found in K, and Eastern Alleghany in K K, both by Prof. STEVENSON. There were administrative, geological, and other reasons which justified this distribution of labors without reference, in some cases, to the arbitrary lines of county boundaries.

Prof. LESLEY has added to the value of this volume by an elaborate preface, which, like every thing from his hand, is vigorous and suggestive; we would add, authoritative, but for the candor and caution with which, on all disputed points and in all matters of speculation, this veteran geologist advances his own views, evidently with the purpose of assisting rather than closing controversy. The compliment which he pays to the work of Prof. WHITE is a well-deserved honor, though it was not needed to convince us of the thoroughness with which that work had been performed. We share with Prof. LESLEY the regret that, to some extent, at least, the fidelity of field observations has been vitiated by the imperfections of the maps. His forcible words on the subject will bear repeating:

"Three colored geological maps accompany this report. I regret, more than I can express, the imperfections of the maps. They neither fit on to each other nor correspond to any common standard map. In fact, there is no such standard map in existence. There are county maps, some of them very old, out of print and impossible to obtain except by loan from their owners, and there are others

of later date; but none of them, old or new, are of any scientific value. There are also county atlases, made up of township maps, none of which can be made to fit together at their edges, and small county maps, which are constructed and executed in so faulty a manner that the geologist and the engineer who attempt to use them are thrown into despair.

"With these imperfect guides the geologists of the survey have been obliged to content themselves and do the best they could, laying in the outcrops of the principal coal-beds and coloring the areas of the different groups of coal measures in reference to the streams and roads, not one of which was properly located. Nor will this scandal to our geology be removed until the Legislature organizes a scientific topographical survey of the State.

"The United States Coast Survey has indeed begun a regular triangulation of the State, and promises to provide us with at least one absolutely sure position in every township of every county. But its means are so limited that this great work moves on very slowly, and, unless State appropriations are made to hasten it, may occupy twenty or thirty years.

"Even after the Coast Survey has determined astronomically and by triangulation these several thousand fixed points, court-houses, main cross-roads, etc., etc., we will only be at the threshold of our desires and necessities. From these determined points each township will have to be surveyed by itself, and then from such township surveys correct county maps may be constructed.

"It is evident that the Geological Survey can not wait for all this to be done. It must therefore use the almost worthless maps—county maps and township maps—which exist, rudely run as their lines have been by irresponsible men, on cheap money contracts, rapidly and carelessly plotted afterward, and finally forced together recklessly and without judgment, so as to come within county lines, which are themselves utterly false and oftentimes half a mile away from their true places. Even the northern line of the State itself is found this year to be wrongly located at every point, so far as the new survey of it by the united commissioners of New York and Pennsylvania has advanced its stations.

"To add to the confusion, the township and county maps thus falsely drawn have been still further falsified by a fresh set of errors inevitably connected with publication.

"The application of photography to the first placing of a map upon the stone is a very recent invention, and even where it has been used, the lines have not been strictly followed in all cases by the lithographer."

Bearing this warning in mind, the student will not be seriously misled by the maps, which, after all, serve a useful purpose in facilitating the comprehension of the text. There are 21 plates, containing about 225 vertical sections, which represent the order of beds and intervening rocks, or the characteristic features of the coal and limestone beds and their local variations. There are several indexes, well-planned and well-executed.

The stratigraphical nomenclature of this bituminous coal-field is at present in a transitional state. Horizons which have been separately fixed are gradually undergoing identification; new beds of coal or limestone, proved to be persistent over large areas, are finding recognition; important discoveries have been made, for which the survey of 1837 left no place in its catalogues and sections. Prof. LESLEY explains at some length the provisional system adopted in this volume, and expresses the anticipation that the publication of later reports on surrounding districts will bring final harmony and simplicity. Enough is already known to make it certain that the so-called Barren Measures, occupying about 600 feet below the Pittsburg coal-bed and above the Freeport Group, have been hitherto misunderstood, and hence mis-named. "Many, perhaps all," says Prof. LESLEY, "of the coal and limestone beds which occur in them are deposits as wide-spread and as recognizable as any of the more important *workable* beds of the Upper Productive Coal Series above them (the Monongahela River System) or of the Lower Productive Coal Series under them (the Alleghany River System)." He adds that these deposits in the Barren Measures will all be determined and named before the close of the present survey. At present, the locally workable coal and limestone beds unexpectedly discovered in the Barren Measures of Somerset County by the Messrs. PLATT (Elk Lick coal and limestone, Berlin coal and limestone, Platt coal, Price coal, Coleman coal and limestone, Philson coal and limestone—See Report H H H) have been partly identified in Prof. WHITE'S field; but his local names are different, and must be retained until the subject has been completely elucidated. A somewhat similar state of things exists with regard to the Lower Productive Coal Series.

The great sandstone deposits traced by Prof. WHITE, and described under the local names, as Pittsburg, Morgantown, Buffalo, etc., are an important addition to our stratigraphical knowledge of the Coal Measures, and bear valuable testimony also with relation to the dynamic geology of that period. They are of wide extent, but "vary in thickness rapidly and frequently within small areas, and graduate not only vertically but horizontally from sandstone into conglomerate and from sandstone into shale." Prof. LESLEY says: "If we could map them, they would probably present a striking resemblance to the sands of the oil region, and be seen to run like them in comparatively long and narrow belts, marking lines of current in the open water of the Coal Era, or perhaps channels of deeper water between and among shallows, or even islands, of finer sand and mud."

But the most interesting part of the report is its discussion of the drift, terraces, and buried valleys of this part of Pennsylvania. The existence of such valleys, now occupied by glacial and other drift deposits, in Ohio, Kentucky, and other Western States, was proved by Prof. NEWBERRY. Prof. HALL performed a similar service for the western part of New York, where the Niagara and Genesee rivers, for instance, flow into Lake Ontario, not through their original channels—these having been choked with gravel by the ice—but through new cañons, which they subsequently carved in solid rock. To such examples, Prof. WHITE now adds a description of the ancient buried valley of the Beaver River, pointing out some remarkable features, which are not easily explained by the ordinary theories. Unfortunately we have not space for the full statement of the facts, and must content ourselves with quoting Prof. LESLEY'S summary of conclusions, the perusal of which, we think, will surely lead every student of such matters to the careful examination of the Pennsylvania reports and their admirable discussions of surface phenomena. Prof. LESLEY says:

"If the conclusions arrived at above should prove to be worthy of acceptance, it would follow:

"First. That the reëxcavation of our western valleys has been accomplished by a second generation of rivers essentially like the first, and occupying mainly the same lines upon the map.

"Secondly. That the method adopted by the reëxcavating rivers was essentially the same as that pursued by their ancestors, the previous excavating rivers; but a method *modified* to suit a changed condition of things, inasmuch as the work of the earlier set had been entirely in the old hard rocks, the Coal Measures, while the labor of the later set was expended upon several hundred feet of recent and therefore soft mud and sand; at least until the lower 300 feet of coarse Northern Drift was reached. The older rivers had been confined to deep, trench-like valleys; the younger rivers meandered from side to side over wider, gently-sloping marshy plains.

"Thirdly. That any theory which assigns our topography to a recent date must be a mistaken one; that no Glacial theory at all can apply to it; that no other agent than the rain-fall can have sculptured the main features of the country; and therefore, that this carving must have commenced immediately after the Coal Measures were lifted continentally thousands of feet into the air; that it has proceeded ever since; therefore, that the actual valleys are of great geological antiquity; and, finally, that the Drift stuff which fills the bottom of some valleys and the Terrace sands and clays which once filled them all to various heights, and portions of which still cling to their walls, belong to the latest of the geological ages, viz., that immediately preceding or contemporaneous with the creation of the mastodon and man.*

"Although the reëxcavation of the valleys since the glacial age has been a slow and laborious operation, occupying many thousand years, the original excavation of the valleys previous to the glacial age must have occupied an immensely longer time, beginning, indeed, with the emergence of the Coal Measures, and continuing without intermission through the Middle Secondary, Newer Secondary, and Tertiary ages. Not only were the valleys deepening all that time, but the whole surface of the continental high-lands was being constantly brought down nearer to the level of the sea. It is in view of this phenomenon that Mr. WHITE'S descriptions of the outlying knobs and patches of Pittsburg and other coal-beds become doubly interesting. These show how much further toward the north than they do now the sandstone, limestone, and coal beds once spread. On the other hand, the erratic blocks which rest on the hill-tops show that this general degradation of the surface of the country has been comparatively slight since the Ice age, our topography being indeed by that time established pretty much as we now see it.

"The power of ice to erode a country has been grossly exaggerated. The glacial excavation of great valleys, and even of the chain of the great lakes, has been frequently asserted, in spite of the absurdity of such a supposition. But one might as well ascribe the depression of the Blue-Grass Country of Middle Kentucky, or that of the Central Basin of Middle Tennessee, or that of the Great Valley of Eastern Tennessee and Virginia to the agency of glaciers. During the 1300′ submergence all these were inland seas or great lakes, like those existing in our day between Canada and the United States. They are excavated in the same Lower Silurian formations with Lake Ontario and Lake Champlain. Because these latter happen to remain reservoirs of water, that is no reason for assigning to them a peculiar origin.

"In like manner Lakes Erie, Huron, and Michigan are in all respects similar to the excavated Devonian and Upper Silurian valleys of Pennsylvania, Virginia, Tennessee, and Alabama, except that they hold standing water. Were their outlets deep enough to drain them, no one would imagine them due to the action of ice, or think of assigning them a date so recent as that of the Glacial age.

"I have repeatedly urged the important consideration that the main agent or condition of erosion is the *chemical solution of the limestone formations*. This is plainly true of all the anticlinal valleys of the Appalachian belt, extending from Canada to the Gulf of Mexico. It is evidently true of the limestone basin of Middle Tennessee and of the Blue-Grass Country of Kentucky; for millions of caverns, large and small, sink-holes, sinking springs, rivers disappearing underground and reappearing further on, dark ravines, natural bridges, attest the fact, show the process still going on, and explain it in all its details. The sandstone and shale formations have been let fall and disintegrated by the gradual failure of the dissolving limestone formations which were their underground supports.

"And what is true of the Alleghanies is true of the Jura, the Pyrenees, the Apennines, and all other mountain ranges composed of alternations of thick and thin calcareous and siliceous strata, folded more or less into anticlinals and synclinals. It makes no difference whether the eroded country be near the pole or near the equator, the features of erosion are always the same, and its amount stands in proportion to the thickness, intercalation, and solubility of the limestone layers, and to the time elapsed."

Another subject of great importance is dealt with in this volume: the erosion of the Coal Measures themselves during the formation of the coal-beds. But we must forbear further comment or quotation. Suffice it to say that in the particulars we have mentioned, and in many others which we have been obliged to pass over in silence, Prof. WHITE'S report, cleverly summed up and enforced by Prof. LESLEY'S preface, constitutes one of the most valuable contributions yet made by the Pennsylvania survey to science or to industry.

NAIL-MAKERS DETERMINED TO STRIKE.—WHEELING, WEST VA., Oct. 31.—The nailers employed in the various mills west of the Alleghanies met in convention in this city to-day, and determined not to go to work at the prices offered by the manufacturers in breaking the sliding scale. The notice of breaking the scale expires Saturday, and on Monday the nailers will strike, provided the managers refuse to allow the old prices arranged by the scale.

* "In this respect it is interesting to observe that the same superposition of a deposit of loam, fine sand, and clay upon an older deposit of coarse gravel characterizes the geology of the surface of all Europe north of the Pyrenees and Alps, and of all Asia north of the Caucasus, Himalaya, and Altai mountains, as far as Behring's Straits; and still more interesting to learn that the remains of the mammoth and of man in the old world are said to be always found in the lower or coarse gravel beds. The remains of mastodon preserved in the Pittsburg High School Museum were found, and others have more recently been reported to be still lying, in the gravel bed of the Ohio River, in front of the city point where the two rivers meet. (See page K, 22.)

THE MISSISSIPPI JETTIES.

EDITOR ENGINEERING AND MINING JOURNAL:

With regard to the HUMPHREYS-ABBOTT-EADS controversy, permit me to draw attention to an existing scientific decision in principle of the case under consideration, and of incontestable authority, because arrived at by pure mathematics. I speak of the axioms established by R. P. VON RITTINGER, *with regard to the relation between velocity of stream and suspension therein of particles of solids.*

I quote (translate):

1. Solid particles, which in a horizontal stream of uniform height deposit on the same place, are equal falling (though they differ in density and size); those being equal falling deposit on the same place (p. 207).

2. The same velocity of a water-stream is required to float particles of solids being equal falling (though they differ in diameter and density) (p. 212).

3. The velocity of stream required to float solid particles is in proportion to the density and to the diameters of these particles of solids (p. 212).

4. In proportion to its decreasing velocity, the stream of water loses the capacity for carrying certain particles of solids in an inverse ratio to diameter or density of particles, those of a higher density or larger diameter being deposited first (p. 216 c.).

It thus appears that the velocity of stream does *not* exercise an absolutely direct influence on the *quantity* of solid matter (suspended) floated, but on the *quality* of particles only.

The floatable quantity varies not absolutely with varying velocity, but the floatable quality does, and with an increase of velocity the stream acquires the capacity of carrying particles of solid matter of an increased density or an increased diameter. (The writer has observed mountain-streams carrying particles weighing five tons and over.) And with a decrease of velocity the stream loses the capacity to carry (not eventually the same weight or the same volume of solid matter but) particles of solids of such density and such diameter as it was able to carry with a higher velocity.

In the case of a large stream-bed, the water permanently deposits with decreasing velocity, either locally or in total, and permanently takes up particles from its bed with increasing velocity, either locally or in total.*

As long as the velocity between the jetties remains at least the same as that of the stream above, no deposit takes place between them. Whenever the velocity of the stream between the jetties is higher than that of stream above, the stream will deepen its channel until either the velocity has been equalized, or until no particles of such density and such diameter as correspond with its velocity are left.

But with the same scientific necessity will solid matter be deposited beyond the ends of jetties, where their influence to increase velocity of stream ceases. The practical question of ultimate result then stands only on the question of space for such deposit. On a shallow sea-bottom the unavoidable necessity will occur to continually prolong the jetties in order to prevent bar formations, and to furnish new space for the deposits, unless the ends of the jetties come within the influence of a natural side current of same velocity as that between the jetties.

With the attaining of a precipice in the sea-bottom, the formation of the submarine bar would not cease, but it would take a longer period for the bar to reach the surface and to become detrimental. Withal, the tidal rise furnishes a less costly mode of keeping a channel open for a given time, namely, the construction of artificial or the utilization of natural reservoirs for automatically receiving and retaining the tidal prism, but the sole outlet of which reservoirs being through pipes distributed over the bottom of the channel, such outflow being regulated automatically by difference of level between reservoirs and sea during tidal changes, the outflowing water exercising the greatest effect in accelerating the existing stream when tide is lowest, thus keeping the channel bottom in motion at a predetermined depth. This arrangement, like the jetties, would require successive prolongation unless favored by natural side-current or precipice.

Respectfully,

F. M. F. CAZIN,
Civil and Mining Engineer.

BERNALILLO, N. M., October 1, 1878.

* A practical illustration more striking than others is the Ohio River. Whenever its waters fall, they distribute bars all over its course, not identical with those existing before they rose.

THE FORSTER-FIRMIN AMALGAMATOR.

The apparatus which we illustrate herewith offers features which should commend it to the attention of mine-owners and mill-men. It is not a roaster or crusher, so that those who are working sulphureted ores need not expect to obtain impossible results. The Forster-Firmin Amalgamator takes crushed free or roasted ores, and saves from them nearly their entire assay value of gold and silver, and that with a very trifling loss in quicksilver. The process is exceedingly simple, and the results of experiments recently made at Norristown, Pa., at the works of the patentee, are stated by a number of persons who witnessed them to have been highly satisfactory, the yield being within one or two per cent of the assay value of the ore tested, and the time required in the treatment wonderfully short. The following description of the apparatus is taken from the company's circular:

"By reference to the annexed diagram (Fig. 1) it will be seen the apparatus is a simple tube, with attachments for feeding the ore, mercury, steam, compressed air, water, or other equivalent motor. In working,

FIG. 1.

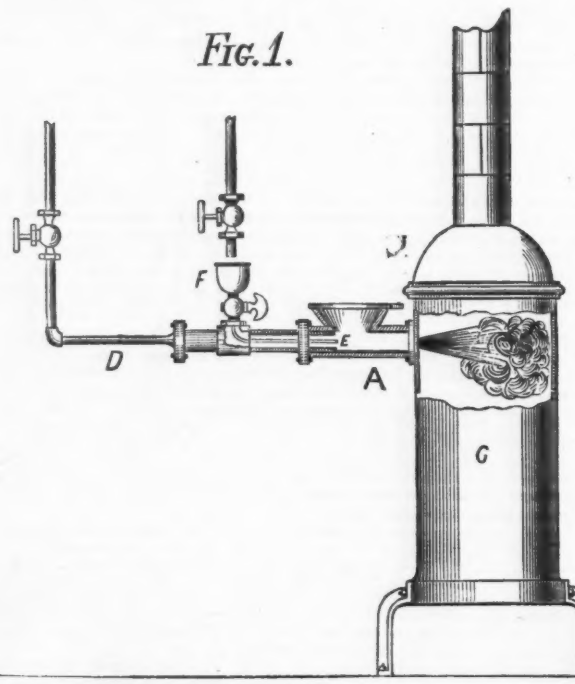
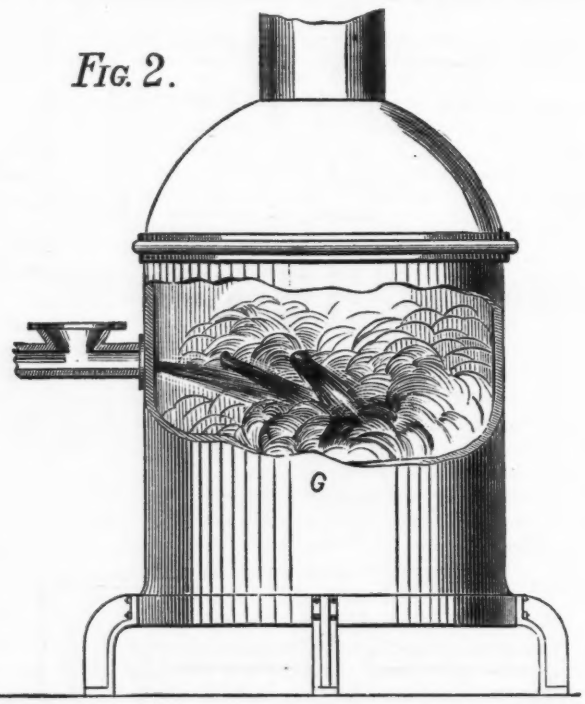


FIG. 2.



the pulverized free ore is fed in either a dry or semi-fluid state into the tube *A*; the mercury passes from the cup *F* in a continuous stream, which may be adjusted to any desired quantity from the thickness of a cotton fiber up. This mercury, as it leaves the conduit pipe *e*, is atomized, or broken up into the smallest particles short of vaporizing, and impinges upon the stream of ore, as it falls in a like continuous stream; the force of the steam, or other motor, admitted by pipe *D*, not only atomizes the mercury, but carries the ore and mercury forward with great rapidity until the commingled substances are projected forcibly against the side of the vessel *G*, whence they fall into the washer or receiver.

"In our larger apparatus (Fig. 2), the operation is somewhat modified; the tube (*G* in Fig. 1) is made of larger dimensions and fitted with three or more feeds, each arranged as already described. These atmospheres of mingled ore and mercury meet in a common center and become forcibly and thoroughly incorporated with each other, the projecting force required being comparatively insignificant.

"Figs. 3 and 4 represent the improved washer in sections; the operation of this is apparent. The ore, amalgam, and surplus mercury are passed from the amalgamator to the washer, into which steam may be injected; the shaft communicates motion to the rollers and scrapers; the mercury and amalgam collect and fall into the chamber in the conical bottom of the vessel; the upward spiral force of the water, which is injected into the chamber at the bottom of the vessel, carries off the gangue rapidly with much less force of water than is ordinarily used, thereby preventing loss of product. This overflow we carry into a series of receivers or settlers, in the last of which amalgamated copper plates (to which the action of the water gives a vibratory motion) are suspended to arrest any little particles of mercury that may be carried forward. These settlers have a partition extending from the top of the vessel to near the upper side of the agitator which sweeps the bottom, so that the waste has to pass under the partition to find its outlet at the top into the next of the series. The action of the agitator facilitates the separation of the waste from the mercury, which deposits itself in the conical bottom of the vessel, whence it is drawn off through the discharge-cock without arresting the operation, thus making the entire process continuous, the attendants having only to feed the hopper and occasionally remove the mercury and amalgam, which, being free from the constant trituration to which it is subjected in other systems, is not injured, and can be easily and quickly recovered.

"By this process we have obtained from 98 to 100 per cent of the precious metal contained in the ore, and recovered a like percentage of the mercury used, the operation being completed within one hour from commencement."

The fullest opportunity is offered for examination of the practical working of this apparatus at the patentee's works in Norristown, Pa. The general principles involved in the process and the simplicity of the apparatus used are of such a practical, rational character as to prepare us for the announcement of working results approaching the assay value of the ore.

It must be remembered, however, that the apparatus is for the amalgamation of pulverized free ores, and sulphurets will still require their embarrassing preliminary roasting, and all ores, of course, require to be pulverized—the finer the better—before amalgamation. The company owning the patents leases the apparatus at a fixed monthly rental as follows:

1. An amalgamator, having a working capacity of 2000 to 3000 lbs. ore per hour, $100 per month.

2. Working capacity, 6000 to 9000 lbs. per hour, $250; capacity, 10,000 to 15,000 lbs. per hour, $350.

The lessee keeps the machine in repair and pays the freight from Philadelphia.

Washers and settlers pay a single fixed charge of from $350 to $600, according to size, and a rental of $1 a month.

The patents are owned by the Forster-Firmin Gold and Silver Amalgamating Company, of Philadelphia, with a capital stock of $130,000.

Fig. 3.

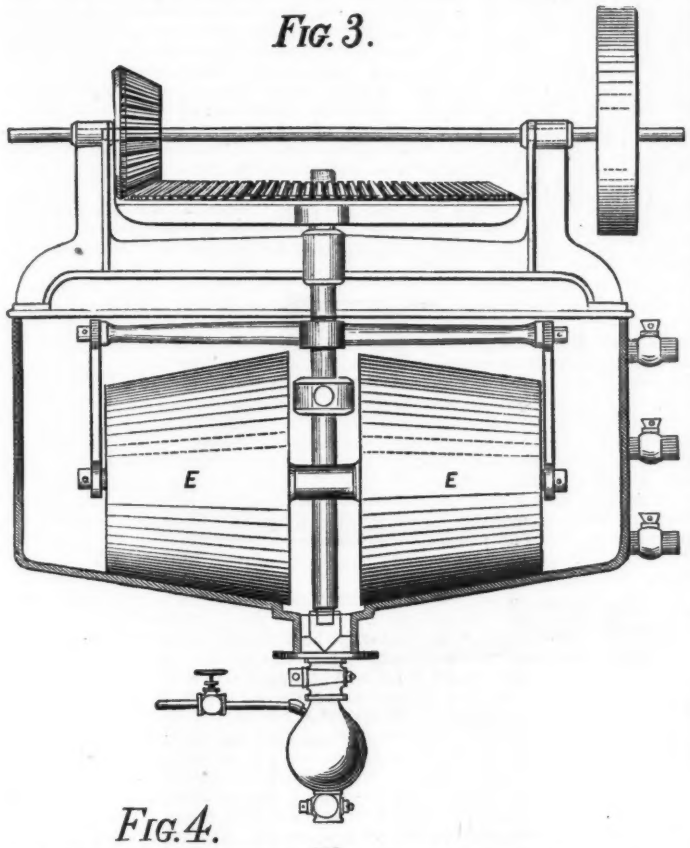
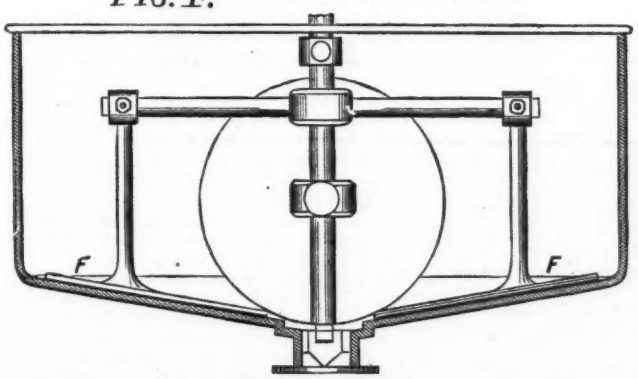


Fig. 4.



AN INTERESTING COMMUNICATION TO THE SMITHSONIAN INSTITUTION.—Professor Baird, of the Smithsonian Institution, has just received an important communication from Frederick A. Ober, of Massachusetts, the well-known naturalist, who has been engaged for two years past under a commission from that institution in exploring the natural history of the West India Islands. He has been remarkably successful in his work, and has recently transmitted to Professor Baird a numerous collection of birds, embracing many new species, many of them exceedingly rare and hitherto unknown in the collection of the Smithsonian Institution or in any other in this country. Mr. Ober has attained a high reputation as a naturalist, and his report on the fauna of those islands on his return the coming winter will be looked for with great interest.

CORUNDUM AND ITS GEMS.*

By Charles W. Jenks.

[Revised for publication by the Author.]

MR. PRESIDENT AND GENTLEMEN: It is due the distinguished gentleman who presides this evening, as well as to others present, eminent in the ranks of science, that I should at the outset disclaim either the ability or the intention of treating the subject before us in a scientific manner.

What I propose is, to give the facts as to the discovery of corundum *in situ* in this country, as they have fallen under my personal observation; with sketches of the locality, and specimens of the mineral and its gems, in the hope that the result of the effort shall contribute somewhat to the advancement of science, and greater progress in some departments of the mechanic arts.

Corundum, in its granular as well as gem forms, has been known to the world from a very early period. In the first, used as an abrasive, second only in cutting qualities to the diamond; and in gems, as sapphire, ruby, asteria, etc., nine in number, some of which to-day outrank in value, as they have ever done, the costliest diamonds. I shall show you some of these this evening; specially one, locked up in its native matrix, which, could it be liberated and be perfectly cut as a gem, would in the market of London sell for five times the price of a diamond of the first water of the same size. In fact, it would, so far as is known, have but one competitor in Europe, according to Mr. HARRY EMANUEL, a great authority there in such matters, who says: "I know of but one corundum emerald now in existence; it is the rarest of all gems, and the most valuable." It is its extreme rarity, and the nature of its composition, pure alumina, giving it so much greater hardness and brilliancy, which gives it this great value. The emerald of commerce from Peru and Bogota is largely silica, of course softer and quite common. From a date as early as Solomon, the corundum-gem localities have been known and worked in Armenia, Bactria, India, Ceylon, and elsewhere. The extreme beauty of these gems early invested them with a powerful talismanic influence in the minds of their owners; and greed for their possession involved several of the Oriental nations in costly wars and much bloodshed.

MOSES, by divine command, enshrined them in permanent form over the heart of the Great High-Priest, where their brilliant scintillations, in some mode unknown to us, voiced the will of JEHOVAH himself.

In granular form, corundum was known to the Persians as Armenian stone; to the Chinese, as adamant; and to the people of India, as corundum, from the Hindoo word *korunda*, or cinnamon-stone, so called from the resemblance in color to that article of the variety found in that country. By this latter name the mineral is now known, from whatever locality it comes. It is widely scattered over the earth's surface; and yet, though for more than two thousand years used extensively as an abrasive, it has not, so far as I can ascertain, until the past five years, been legitimately mined. In the ravines of the mountains in Siberia, China, and Hindostan it is gathered by the natives in small crystals after the rains; but it is not now, nor ever has, so far as we have evidence, been sought for, at much depth beneath the surface. In India, hitherto the chief source of supply, it is, like most of the industries there, of caste production; and of its localities, methods of development, and amount of product, it is very difficult to gain information. Sir CHARLES GREVILLE, of London, about the year 1798, in company with Count BOURNON, of Paris, prepared an elaborate paper for the Royal Society of London upon this subject. Sir CHARLES visited one of the localities in India, but nowhere saw the mineral in position or in much quantity, the natives working in trenches, and finding scattered masses here and there, with no evidence of vein formation. The gems have always been sought for by similar methods in the beds of streams or on the banks of the same. This is the character of the mining to-day for both classes of the mineral in all the noted localities of the old world.

Emery, one variety of corundum, as is well known to you, is extensively mined among the islands of the Ægean Sea, in Asia Minor, near Ephesus, and in an impure form at two or three points in our own country. A paper upon this mineral, and the first where it had received thorough scientific attention, was read, some twenty-five years since, before the French Academy, by one of America's most distinguished scholars, Dr. J. LAWRENCE SMITH, of Louisville, Ky.

It has always seemed strange to me that so little was certainly known of corundum; long used, next the diamond in cutting power, and always in some of its forms more prized as an ornament than that so-called "king of gems"!

In their size, brilliancy, color, and artistic execution there are no modern precious stones of this mineral equal to those that have come down to us from an early age. May it not be possible, also, that, in its granular forms, its mining and uses have been among the "lost arts" so eloquently described by PHILLIPS? During the first French empire, the emperor placed an obelisk from the banks of the Nile in the Place de la Concorde. Wishing to inscribe the date of its removal upon its base, his workmen destroyed, in their labors, several sets of the best steel tools, but failed in their purpose. Yet the same column is covered with hieroglyphics from tip to base, by the skill of the workmen of three thousand years ago. I believe there are but two—and those unimportant—well-authenticated instances of the occurrence of the harder metal, as found amid the ruins of Egypt by modern explorers. What were, then, the tools the ancients employed so skillfully? On the other side the Red Sea, whence came the harder monuments of the Nile valley, there has recently been found corundum, with all the indications of ancient workings. From this locality, may not those early artisans, "skilled in all the wisdom of the Egyptians," have found their tools, with which to execute thousands of square yards of exquisite workmanship with seeming ease, to imitate a few lines of which, successfully, exhausted the resources of the mechanics of Napoleon Bonaparte? Be this as it may, a workman in the near city of Worcester has invented a formula by which he has given us for exhibition this evening a wheel of corundum that will cut not only the granites of old Egypt, but even the diamonds of old Golconda!

It has been said in England that "a good mine of emery is worth more

* A paper read before the Society of Arts of the Massachusetts Institute of Technology, Boston, Dec. 14th, 1876. President John D. Runkle in the Chair.

to a manufacturing people than many mines of gold." But emery is only valuable for its cutting properties; what gives it these is its possession of forty to fifty per cent of corundum. In the scale of hardness, with the diamond at the head as 10°, the best emery stands at 7°. But corundum stands at 9°, but one degree below the hardest known substance. There is a vast and constantly increasing field of labor, which the best of emery can occupy but poorly, if at all; and the diamond, even with the great influx from South Africa, is much too expensive for general uses. Two thirds of the gap between emery and the diamond are filled by the qualities of the mineral we are discussing; and the other third is being lessened by better modes of forming corundum for use, by rapid friction, and the immensely less cost of this abrasive for the uses of the larger industries.

Among these industries, in granite, steel, the new alloys, etc., there is a call for a tool that will do the work of the diamond, but of moderate cost.

I have just cut from a scientific journal the following article:

"With the new alloys for gun-metal, rolls for paper-making machinery, the finishing more rapidly plane surfaces in iron, steel, etc., there comes a demand for a new tool of harder material than any now in use. This demand has made itself known in Paris by an offer of three thousand francs as a prize from the 'National Society for the Encouragement of Industry,' the offer to hold good until the next great Exhibition in France in 1878."

In this connection allow also the reading of a brief extract from the London *Times*, on the novelties and triumphs of American machinery as illustrated in the late International Exposition.

"New agents have been wanted to give a true surface to chilled iron or hard cast-steel. They are to be seen in W. SELLERS & Co.'s planers and drill-grinding contrivances. The agent is the emery wheel of the lapidary, not by the old hap-hazard system, but by well-defined movement. Their work, as a whole, should teach a lesson not to be forgotten to every competing nation."

These communications recognize the necessity of some new agent which, by its superior hardness and cutting power, shall add both speed and accuracy to execution. Any form of the diamond now known is altogether too expensive for extensive consumption. But very close upon it comes corundum, which can be supplied in quantity and but little above the price of emery, and in all the forms in which that mineral is used. Could the writer in the *Times* have seen the operation of the corundum wheel, in bringing to an even surface a chilled-iron calender for paper-making machinery, his surprise would have been great indeed; for it is difficult to conceive, even with the diamond, of more rapid or perfect execution. One form of tool has been spoken of as of recent invention. It is the wheel I now show you, the work of Mr. F. B. NORTON, of Worcester, Mass., made by him of nearly pure corundum, and which he calls the "Sapphire wheel." It runs and does its work equally well, wet or dry; water, heat, or acids having no perceptible effect upon it. It cuts cast-iron, scale steel, chilled iron, any alloy, granite, etc., with much freedom. One of its best tests is the bringing of a steel tool rapidly to a cutting edge, without heat or loss of temper. This is due to its free cutting qualities, giving in the operation but little friction.

We have with us Mr. Samuel Reynolds, of this city, I believe the oldest, and certainly one of the most intelligent as well as skillful, lapidaries of this country. His testimony as to corundum as an abrasive corroborates all I have said; and also, as to the execution of the "sapphire wheel," gives the same testimony, he having cut even the diamond with the wheel before us.

Put into the form of this wheel, or used in any other that lapidaries or workers in metals employ, corundum will do 30 per cent more work than the best emery, much work that emery can not do at all, and not a small portion of the labor now done by diamonds in various forms.

I make this assertion with numerous indorsements, one of which I will give you, that of Colonel J. G. Benton, commanding at the U. S. Arsenal, Springfield, Mass., who says: "In one hundred days' work, corundum gives us a saving over the best emery of about forty-six per cent."

We have seen some of the uses and advantages of the mineral under consideration as an abrasive or cutting agent: a few words as to its gem characteristics, with a description of the mining locality where found, and I leave the matter in your hands for inquiry or discussion.

The corundum gems are nine in number. They are designated by the prefix "Oriental," because first known as coming from the East, their superior hardness and brilliancy, and because some gems of the same name are of an entirely different mineral. They are called the Oriental sapphire, ruby, asteria, emerald, topaz, amethyst, girasol, chatoyant, and white or colorless sapphire, this last very often used in place of the diamond. These all, of greater or less purity, have been found in the locality we show you in this sketch, which is among the Blue Ridge Mountains in Western North Carolina.

This section of the country is exceedingly beautiful in its scenery, with a climate, even at the elevation of the mine—three thousand feet above tide-water—much like that of South Europe.

In the old-world localities, corundum in massive form and the gems are not found in the same neighborhood. It has been the generally-entertained opinion among men of science that the geological and mineralogical conditions of the two forms of the mineral were so unlike that it was not probable they would anywhere be found together or near each other. Nature in our hemisphere shows a different development, certainly in North Carolina, where we find both forms in the same mountain.

All the gem localities of the East, where colored corundums are looked for, are, as has been said, in the beds of the streams, or in the banks on and near them. This is the case in India, Ceylon, Bactria, the Ural, China, etc. In fact, so uniform had the experience been in this direction that authorities, from Pliny to the present date, were quite united in the view that these stones were to be looked for only in the secondary formations, and as water-worn gems. Count Bournon, Cuvier, Buffon, Haüy, Sir James Bruce, and others gave this view. Sir Samuel Baker and Judge Mitford, British judge of Ceylon, both of whom have resided many years in that island, and mined extensively for sapphires, use, in their recently-published works, this language: "It is our opinion the sapphires were created in the peculiar secondary formations, where they are always found as water-worn pebbles, in a conglomerate of blue and white clay," etc.

I have never found a lapidary in Europe or this country who had seen the corundum gems in any form not subjected to water action; and I have never seen in any cabinet, here or abroad, corundums of pure color and sharp angles from any locality but the North Carolina mine.

We shall show you some of these gems which have been found there on the surface, in the beds of the streams, and at depths of from ten to seventy-five feet, yet three thousand feet above the sea-level. Some were in their native matrix of ripidolite, between hanging and foot-walls of serpentine, apparently undisturbed, and yet with all the appearance of water action; some as clear perfect crystals, with outlines as sharp as though created but yesterday; others as transparent nodules in a matrix of laminated corundum, which, had they been exposed to water action, undoubtedly would have disintegrated and have left the pure gem nodule, as found in Ceylon and elsewhere; others were found singly or in groups locked up in geodes of chlorite, from the size of a hen's egg to a fifty-pound shot; and others still in pockets of partially changed or decaying schists of mica and talc. In a pocket of this latter, the workmen one morning uncovered a crystal perfectly terminated, sapphire at one end and ruby at the other, opaque to be sure, but yet beautiful and of very perfect formation, which weighed three hundred and twelve pounds. It is five times larger than any other corundum crystal, in either hemisphere yet uncovered, and would be a center of attraction in any collection of minerals. It was purchased by Prof. Shepard, and is in his collection at Amherst College.

A comparison of the associate minerals of the ruby of Pegu and the sapphire of Ceylon with those of the North Carolina locality gives the same companions, numbering more than a dozen varieties, many of them of great interest. A microscopical examination for structure and color matter, made in my presence by Mr. H. C. Sorby, F.R.S., of Sheffield, England, and considered the best authority, showed an exact conformity to the gems of the Orient in all particulars, the color matter being due to the presence of chromium and uranium. These examinations go to prove that the geological and mineralogical conditions of the corundum formations in both hemispheres are alike. While prospecting heavily in one part of the mountain, certain indications led me to reflect whether it might not be possible to find geodes or nodules of chlorite carrying gems or crystals of corundum, similar in formation to the quartz geodes of Lake Superior, which in many cases are hollow, and lined internally with groups of beautiful amethysts. My thought was ultimately realized, with this difference: the nodules of chlorite were solid, yet some of them carrying crystals of brilliant color, though opaque like this specimen. I know of no reason why these geodes may not be found of the same character as those of quartz formation, and I will be greatly obliged to any scientific gentleman present if he will give us his views on this point.

You see upon the wall sectional drawings of the mine and its workings, with a general view of the locality.

The aspect of the ridge is somewhat barren, like that of all the corundum and emery localities with which I am acquainted in any part of the world. The granitic rocks which make up the principal masses of the mountains in this locality have been fissured here with a large dike of chrysolite and serpentine in which the corundum-carrying veins are found. These veins traverse the dike, and are mainly composed of chlorite and chloritic minerals, carrying with them corundum in massive and crystal forms. The veins are five in number, dip to the northwest at an angle of forty-five degrees, and contain the mineral in size from microscopic crystals to lamellar crystalline masses of from one to five hundred pounds. The two varieties of chlorite known as ripidolite and jefferesite form the usual vein gangue or matrix of the mineral.

Among other interesting features of this locality, three seemed to me as of special interest to mineralogists: The finding of seemingly water-worn pebbles firmly bedded in the vein gangue some distance under ground; the discovery of the finest gem in color at the bottom of the deepest shaft, its form a clearly-defined crystal with perfect faces; and the fact that crystals an inch in diameter from a depth of fifty feet could, when first brought to the surface, be broken like pipe-stems between the thumb and finger; but which, exposed to the sun and air for a few days, became firm and tough like those upon the surface.

One of the most striking features of this mine is, that I have never met any variety of corundum in granular or crystal form that I could not duplicate in all its peculiarities from the product of this locality.

This discovery of corundum in place in this country has elicited much interest among scientific circles at home and abroad. As evidence of this, in closing, I refer to papers by Dr. J. Lawrence Smith; Prof. Cooke, of Harvard College; Prof. J. P. Lesley, State Geologist of Pennsylvania; Prof. Charles W. Shepherd, of New Haven; and others of this country; and wish to read from communications made to me by Dr. Percy, Professor Robert Hunt, Professor Maskelyne, Superintendent of the British Museum, and others—two from gentlemen well known in America, and to some present. These gentlemen are Professor Warrington W. Smythe, of the School of Mines, Jermyn street, London, and Mr. David Forbes, F.R.S., also of London, who, as a practical mining engineer, stands second to no man in Europe. He was the authority consulted by American capitalists in the Arizona diamond excitement, and his opinion and advice exploded that bubble and saved some millions to the men who sought his counsel.

Professor Smythe says:

"I doubt whether, in England, you will add to the practical knowledge you are now possessed of in the mining of corundum. The results of your explorations, thus far, are so much in advance of previous knowledge in this mineral, you have the field entirely to yourself. This is true both of the gems and granular formations. I can see no reason, certainly, why with so much perfection found as to the former, you may not reasonably look for the richest results in your future efforts."

I handed Mr. Forbes the communications of Professors Smythe and Maskelyne, with my specimens. In his reply he said:

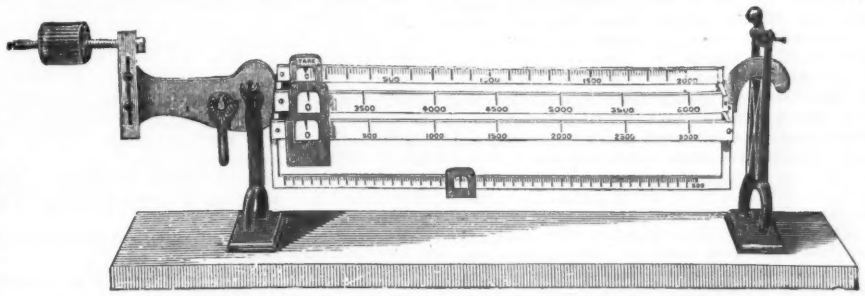
"I have mined in many minerals, in many parts of both hemispheres; but, so far as my observation goes, these specimens of corundum are without precedent from any locality. The observations of Messrs. Smythe and Maskelyne seem to me certainly correct. I differ from one of them as to his opinion these are 'altered rocks,' but that in no way affects their character as likely to yield the mineral you are in search of; it must be there in great quantity and richness. Commercially, as an abrasive, you

know its value as well as myself, no material but the diamond being comparable to it; in fact, could it be had in quantity and at reasonable price, it would be without rivalry for general abrasive purposes.

"As to the gems of ruby, sapphire, etc., I should feel justified in going farther than the gentleman whose views you have given me. Were the property mine, I should feel in its development not only 'probability' they might be found, but I should work in the confident and certain expectation of uncovering the most valuable stones of corundum. I have seen some valuable gems of this mineral. One specially, valued at, and doubtless worth, sixty thousand pounds. Nothing is wanting, in the best specimens you have shown me, but freedom from lamination, to insure the highest value. This peculiarity is a characteristic of all corundum localities known. But you have this advantage over all others—your gems *are in place;* you have them in the vein-rock, an occurrence I have no knowledge of heretofore. All the indications are thus in your favor; and I shall not be surprised at any success in this direction, but, on the contrary, disappointed if it turn out otherwise. You are fortunate in the vein-rock also, it being the soft ripidolite and jefferesite most favorable for perfect gem formation. So much am I charmed by your discovery that, were I not already greatly overburthened, I would go out to America myself and push the matter to what must be a successful issue. Certainly, I envy you your future explorations."

PATENT COMBINATION SCALE-BEAM.

The Patent Combination Beam manufactured by the Marvin Safe and Scale Company is a most serviceable aid to speedy and exact weighing, which here is effected solely by poises. The beam illustrated is for a four-ton scale, and consists of four bars, the topmost one for registering the cart, the second and third bars registering the load up to 6000 lbs., the lower bar for registering the small weights. The bars, according to the purpose to which the scale is to be applied, are so marked as to give the equivalents of weight in other forms of measurement. The Combination Beam may be applied to a variety of MARVIN'S scales, and is to be welcomed both as lessening complexity of calculation and expediting the weighing process.



THE TEREDO AND ITS DEPREDATIONS.*

By Dr. E. H. Von Baumhauer, Commissioner to the Centennial Exhibition from Holland.

(*Continued from page* 295.)

From what precedes, it is evident that the teredo, far from being, as DESHAYES has pretended, an animal having very few if any muscles, is, on the contrary, richly provided with those organs. There are the longitudinal and transverse muscles through the whole length of the mantle, a true sphincter (Fig. 10, *c*) at the base of the siphons, a muscular organ which receives and covers a part of the valves, two adductor muscles for the movement of bringing the valves together, and a foot provided with a suction-disk and susceptible of extension and retraction—truly a profusion of motive organs which one would not expect to find in an animal which passes its entire life in a narrow canal which it can never quit. Moreover, all these motive powers have only one essential end, namely, to endow the teredo with the power of boring his gallery—his home.

But all the muscles which we have enumerated do not coöperate to that end in an equally direct manner. When water has entered by the incurrent siphon, the animal can, by contracting the transverse muscles of the mantle, force the water through the whole length of its body up to the end of the gallery, and then drive it out by the excurrent siphon. The teredo undoubtedly makes use of this as a means of getting rid of the fine filings of wood which the valves of the shell have detached. He can then draw back a little the anterior part of his body by the action of the longitudinal muscular fibers, supporting himself by the two palettes pressed against the inner walls of the calcareous tube at a distance of two or three millimeters from the exterior opening, by which the siphons project outside the wood. It is probable that the teredo takes that position during his periods of repose, which come from time to time, and which he uses for repairing his tools.

The teredo possesses, on the other hand, the means of preventing or hindering the outflow of water at will, so that its body, distended by the liquid, occupies at that time the whole extent of the gallery, and his anterior portion touches with the valves of its shell the end of the gallery. In this position he can carry on his work of miner. He commences then by extending his foot (Fig. 1, *d*), which he fixes by suction against the side of the cavity. At the same time the valves separate a little; then, while the foot draws the shell to itself and thus presses its exterior surface against the wood, the valves close up again, and the denticles with which they are furnished cut into the wood.

In this labor there are still two peculiarities worthy of notice: First, the limited extent of movement with which the valves are endowed, their anterior extremities moving only a very short distance from each other. But this circumstance, in view of the narrow space in which the teredo works, gives him this advantage, that, by the rapid succession of movements of opening and closing the shell, he attains his end—namely, to reduce the wood to an impalpable powder—better than if each blow of the instrument had a wider range. In the second place, we should recall the fact that the directions of movement of the two adductor muscles are at right angles, as are also the directions of the cutting surfaces of the denticles on the two parts of the same valve. Hence it is clear, after the description which we have given above, that if the large adductor muscle contracts, the denticles of the anterior or spiral part of the valve cut the wood; if, on the contrary, the small adductor muscle is shortened, it is the middle part of the valve which undergoes a movement of rotation, and the teeth which it bears are set at work. Thus, then, whether the two muscles contract simultaneously or one by one, the woody cells are cut by successive incisions, which would divide them into small quadrangular pieces, if there be no rending of the fibers. It is evident that the hardest task is demanded from the spiral part of the valve, for it is that part which is first brought to bear upon the wood. This part also has a more solid structure and the denticles are much finer; it is moved by a muscle of considerable size; the power of this muscle is, moreover, sensibly increased by the fact of its being implanted upon the two middle parts of the valves, each of which can be considered as a long arm of a lever whose extremity passes over a space at least four times as large as the portion of the valve which, strictly speaking, does the work.

The foot remains fixed in the same spot a very short time only. The form of the end of the cavity, that of a regularly rounded basin, suffices to prove that the valves of the shell are placed every instant in contact with a different spot. The foot displaces itself, little by little, so as to give a rotating movement to the shell, and at the same time to all that part of the body beyond the shell, even as far as the palettes. When the torsion thus produced becomes excessive, the foot loosens its hold, and the body returns to its former position. Thus, then, the rotary movements remarked by some observers, far from being the cause, should be considered rather the effect; they are only the shifting of position of the animal, and nothing more.

The teredo does not bore out his galleries, but he hollows them out with an action analogous to that of a file, by means of the thousands of cutting teeth with which its valves are armed. If the teeth do not break away rapidly, it is due to their wedge-like form and to the oblique direction of the planes which bound each of these wedges. Moreover, as the animal grows, new rows of teeth are formed, so that the rows which have served in youth are no longer of any use in more advanced age; they are principally the outer rows of teeth, the last formed, which do the work. The sense of touch exists in the teredo in the suction-disk. This is not only a muscular organ, but one rich in nerves. QUATREFAGES has already pointed out the two small ganglia, situated on the intestines, which furnish the nerves for that part of the body. The foot, when extended, commences by feeling the place before attaching itself to it and drawing the shell after it. Naturally, it avoids the places which seem to offer too much resistance; but he avoids with equal care the parts where there only remains a wall of wood too thin for sufficient resistance. In this case, in fact, the gallery is approaching either the surface of the wood or a neighboring gallery; a teredo is never known to destroy the work of another; that, moreover, would not serve him, for, even should he perforate the woody division between them, he would drive against the

FIG. 1.

FIG. 10.

calcareous tubes, which, being scarcely less hard than the valves themselves, can not be attacked by them. Whenever the teredo encounters an obstacle, he simply turns aside; he acts like the mole, which, excavating her trenches by preference in a rich loam, makes a *détour* around the stones which she meets in her way, and changes her direction when she comes near the breast of a ditch, to avoid the open air.

I will state, moreover, that the conclusions regarding the manner in which the teredo perforates his galleries, deduced at first by HARTING from the anatomical examination of his organs, have since been fully confirmed by direct observation; KATER, having opened laterally one of the galleries, so as to partially expose the animal, has seen him at work, executing all the movements above mentioned.—*Popular Science Monthly.*

(TO BE CONTINUED.)

* Extract from the Archives of Holland, Vol. I. Translated by Edward R. Andrews.

The iron trade of the United States has developed to such an extent that whereas in 1873 the imports of rails amounted to £3,948,140, the last financial year shows an importation amounting only to £1060, a decline due partly to the lessened demand, but mainly to the growth of the iron trade in America.—*Eng. Mech.*

THE OLD TELEGRAPH WORKS, UTAH.

Special Correspondence of the Engineering and Mining Journal.

The Old Telegraph works are centrally and advantageously located on the eastern bank of the Jordan River, fifteen miles south of Salt Lake City, and sixteen miles east of the Telegraph mine. They are in direct connection with the Utah Southern Railroad, and the Bingham Narrow-gauge Railroad. The railroad track is laid in the rear of the furnaces and concentrating works, greatly facilitating the handling of ore, which is dumped directly on the feeding floors, located twenty feet below the track. The company owns forty acres of land along the Jordan River. In front of the works a low marshy flat extends to the river, containing about ten acres. This will be used as a depository for the slag and waste of the works.

The works include five blast-furnaces, the leaching works, and the concentrators. The blast-furnaces have each a capacity of twenty-six tons of ore per day, using Telegraph jig and table ores, averaging 45 per cent of lead and 25 oz. of silver per ton.

The fluxes used are Flagstaff ore and Tintic hematite iron ore, and Pasco limestone. The fuel used is Colorado and Connellsville coke and Hilliard charcoal. The water for the works is conveyed from the Jordan River. This stream is the outlet of Utah Lake; flowing about twenty-five miles, it empties its waters in the Great Salt Lake. The river is tapped twelve miles south of the works, from which point the water is conducted in a canal. This forms a water-power of forty-seven feet fall, utilized by a double turbine wheel, with horizontal axis, eighty horse-power. A wrought-iron pipe, thirty inches in diameter, conveys the water from the canal to the wheel.

A steam-engine of seventy-five horse-power is always ready to connect in case of failure of water from frost or any other cause. Water jacket furnaces are used; they are twelve feet high, five and a half feet in diameter, three and a half feet hearth. There are seven tuyeres. For fire purposes they have a Holly pump, throwing a stream four inches thick. A railroad track is also laid on the tapping floor to load the bullion in broad-gauge cars. A roasting furnace has been completed, forty feet long, for roasting iron pyrites, carrying gold and silver; after the sulphur is expelled, it is hoped to be used successfully as an iron ore for flux.

OLD TELEGRAPH LEACHING WORKS.

The leaching and concentrating works are located about one hundred yards south of the furnaces. The cars run to the top of the building, where the ore is dumped into a box, and from there fed into a revolving screen; from thence it passes between two Cornish rollers, thence to a hopper, and it is taken in small cars and run into leaching-vats, ten in number, each having a capacity suitable for leaching fifteen tons of ore at one charge. These tanks are constructed of heavy red-wood lumber; they are fourteen feet long, twelve feet wide, and three feet deep. After treating with the leach-water from six to eight hours, the ore is shoveled into cars and run into a hopper, from which it is elevated by a wheel, eighteen feet in diameter, to a series of revolving screens, where it is received and then sized by four jigging machines underneath, where the coarser lead ores are extracted. Thence the lighter lead ores are carried by a jet of water to a battery of twenty stamps, from thence to a series of revolving tables twenty-four feet in diameter, where the fine lead is separated from the slimes. From these tables it is taken to the furnaces and smelted.

Referring again to the leaching-tanks: there are twenty precipitating tanks four feet wide, seven feet long, by four feet deep, and two large receiving-tanks, each fifteen feet in diameter by twelve feet high, into which the liquor runs after the silver has been precipitated. The liquor is then pumped back to leaching-tanks that are ranged along the full length of the building, and taken from them to be used again on the ores.

The building in which are located the leaching-vats is one hundred feet long by sixty-eight feet wide.

All the work is performed by water-power utilized by a double turbine wheel of eighty horse-power. The entire concentrating machinery works automatically. They have had these works in operation about twenty days, and they prove to be a great success. The leaching department was built in order to extract the silver contained in the quartz, which was previously lost in the concentration. Three large reservoirs are constructed below the concentrating works to receive the slimes which contain silver and lead, which are taken back and mixed with the table ores, and smelted. A building has just been erected, sixteen by thirty-two feet, for the purpose of mixing the chemicals.

The process adopted by Mr. L. E. HOLDEN in leaching is based upon the principle that hyposulphite of soda is a solvent of the chloride of silver. The success of the process is due partially to good management, and partially to good fortune in finding the silver in the Telegraph ores very largely as chlorides. It is well known that silver chlorides dissolved by hyposulphite of soda could be precipitated from such solution by introducing a small quantity of sulphide of calcium. Polysulphide of calcium, which is used to precipitate the silver, is manufactured on the premises.

"The solution in hyposulphite of soda of the silver contained in argentiferous ores was first suggested in a paper published by Dr. PERCY in 1848, and a translation of this having reached the Austrian chemist, it resulted in 1858 in the introduction, at Joachimsthal, by VON PATERA, of the process which now bears his name."

From eighty to one hundred and twenty tons per day are leached and concentrated at a cost not exceeding two dollars per ton; not over two per cent of lead and five ounces of silver per ton are lost. The leaching and concentrating works were erected and are now under the management of B. B. VAN DUZEN, who has had a large experience in the leaching-works at the Telegraph mine. These works are the most extensive of the kind in the United States. The management is much to be commended in reaching such an economical mode of treating the chloride silver ores of Utah.

There has also been a new laboratory built on the premises, with all the modern appliances for analyzing and assaying bullion and ores. R. H. TERHUNE, a gentleman of high repute as a chemist, has charge of the laboratory, and is also superintendent of the telegraph works.

SALT LAKE CITY, October 23, 1878. ARCHIBALD.

SILVER CLIFF COLORADO.

Special Correspondence of the Engineering and Mining Journal.

This new camp gives a true exposition of the excitable and really wonderful elasticity of the American character. Every thing is on stilts, and every body seems determined to scramble up to the summit, without for one moment considering the possibility of being precipitated down-hill by being over-rash. Town-lots in the new town are changing hands daily and hourly, with hundreds of dollars made by the change. Holes in the ground are bought and sold at figures not in conformity with good sense. Because large quantities of good paying rock are found at three or four places, every claim is thought a bonanza, and estimated to represent a little fortune. Thus the speculative and excitable character of our nation demonstrates itself with a vengeance. More exhaustive trial workings are to be started upon the Racine Boy claim, which, if demonstrating permanency of the chler-silver infusion, will go a great way toward settling the question of what we have here. The country is being prospected as well to the S.E. as to the N.W., and I have been shown some good-looking conglomerate rock from Pleasant Valley, about 40 miles N.W., and between here and the Leadville carbonate deposits, which bids fair to make another mining excitement. There is no doubt in my mind that, before long, the JOURNAL will have to record the discovery of this chlor-silver infusion elsewhere. Yet I can not fathom the cause of so much over-excitement; it seems to me uncalled for. Why do people seem almost crazed at such things? Does it make it better or more extensive? Why not try, test, and investigate before running off upon the tangent? True, hundreds of tons of silver-bearing rock are hauled away and yield good profits to the shippers; but what of that? Why do not people work down and find where it comes from, and not get half-crazed over probabilities? I have of course obtained several claims here, but I intend to investigate them, try them thoroughly, and see first what is in them, before I get excited. Daily, hundreds of people pour into the new town from all points of the compass, and the best part of them must be disappointed, for only hard and persevering labor and application will develop mines. It is reported that thousands of men are *en route* to Silver Cliff from Leadville and the San Juan to try these prairie deposits. There will be suffering untold here this winter.

I hope to be able to report more conclusively upon the nature of our new discoveries; so far, they are really astonishing. The surface cap will soon be perforated by the several shafts under contract on the Racine Boy claim, and then it must show what underlies the surface rock. The facts in the case now are:

1. There is a heavily-charged trap-rock overlying all, charged with (Cl_2Ag) in paying quantity.
2. This rock is mostly unstratified, often a conglomerate mass, carrying manganese ores with (Cl_2Ag) and (ClAg).
3. There is underlying a bed of loose *débris* of the same material, carrying the same mineral infusion.
4. Said mineral-bearing rock or dike is about a mile wide and 10 miles long, in a N.W. and S.E. strike.
5. There have not as yet been found any veins showing permanency of condition.
6. There are bordering this dike to the northeast, veins and crevices of mineral-bearing matter, showing galena and copper (malachite and lazurite), low in silver, but assaying up to 23 per cent in lead and 15 per cent in copper.
7. These carbonate crevices are striking east and west and southeast and northwest, with some instances of a southwest and northeast strike.
8. There are large beds of obsidian intermixed between and parallel with the strike of the dike, having a moderate dip to the northeast.
9. There are deposits met with of quartzite, in form of round boulders imbedded in soft silica, showing geyserous production.
10. The formation is of late age.
11. There is granite upon both sides of the porphyritic dike, *overlying* with strata southeast and northwest and dip northeast about 35 degrees from perpendicular on the northeast side of dike, and *underlying* in *débris* on southwest side of dike. Such are, in condensed form, the observations I have made so far, and which may be modified when further developments make other observations possible. CARL WULSTEN.

SILVER CLIFF, October 20, 1878.

Concerning these mines, the Denver *Tribune* has the following:

"No doubt there are good mines there, and nothing is more certain than that most of them are worked without trouble or much expense, for the mineral literally 'lies around loose.' But it is this fact which alarms the cautious miner or prospector. We have seen a private letter from an old prospector there, which is very interesting, to say the least, whether his conclusions are warranted or not—a matter which the *Tribune* does not undertake to determine. He says that all the evidence points to one fact, namely, that the camp is located on the site of an extinct volcano, or hot springs, and that the irregular shape and position of the bodies of ore thus far discovered plainly result from volcanic action. The original deposit, where the ore existed in place, was probably destroyed entirely, and the mineral was dispersed over the surrounding country. In proof of this theory he cites the fact that in sinking upon their shafts the miners find cinders, ashes, lava, and even pure glass, at a depth of thirty-two feet, and no indication of ore in place; nor does he think it likely that any permanent deposit will be found, though many irregular bodies, some very rich, will be struck here and there by chance. The discovery reminds him of the celebrated White Pine district in Nevada, which caused so much excitement for a time, but afterward proved a great disappointment to a majority of its patrons."

GOLD IN CHILI.—PANAMA, October 6.—Gold in paying quantities has been discovered in the southern part of Chili, and already locations have been made by English capitalists of Valparaiso. The gold exists in placers, which are said to be very extensive. There is abundant water to enable hydraulics to be employed in conducting the work of washing out the deposits, and extensive arrangements for canalization, building flumes, etc., to convey the water to the mines have already been commenced.

NOTES.

AUSTRALIA TO HAVE A WORLD'S FAIR.—WASHINGTON, October 31.—The Department of State has been informed by the American Vice-Consul-General at Melbourne that it has been decided to hold an international exposition in that city, commencing October, 1880. A public garden in the center of Melbourne has been secured for the exposition, and Parliament has voted $300,000 for the erection of the necessary buildings. This will be the greatest exhibition ever held in the Southern Hemisphere. The Vice-Consul-General suggests that American inventors, for their own protection, should take out patents in each of the Australian colonies, each colony having a different patent law.

RECORD OF NEW RAILROAD CONSTRUCTION.—The *Railroad Gazette* of November 1st, contains information of the laying of track on new railroads as follows:

Pittsburg, New Castle, and Lake Erie.—Extended northwest 24 miles, to Harmony, Pa. It is of 3 feet gauge.

Kankakee and Southwestern.—Extended south 7 miles to Chatsworth, Ill.

River Falls.—Completed from Hudson, Wis., southeast to River Falls, 12 miles.

Rochester and Northern Minnesota.—Extended from Pine Island, Minn., northward to Zumbrota, 8 miles.

Plainview.—Completed from Eyota, Minn., north to Plainview, 16 miles.

Chicago, Milwaukee, and St. Paul.—The *Iowa and Dakota Division* is extended west 24 miles to Sheldon, Ia.

Sioux City and Pembina.—Extended from Portlandville, Ia., north to Calliope, 17 miles.

This is a total of 108 miles of new railroad, making 1635 miles completed in the United States in 1878, against 1668 miles reported for the corresponding period in 1877, 1875 in 1876, 986 in 1875, 1363 in 1874, 3075 in 1873, and 5709 in 1872.

CINCHONA TREES IN JAVA.—The number of cinchona trees is considerable. From these the bark is extracted, and is both used at home and exported. Of late years the "vin de quinium" is manufactured. This tree was planted in the country for the first time in 1852 by J. C. Hasskael, the cinchona being imported from Peru. A few years later, the cinchona lancifolia; and then several other varieties. The government plantations are in the western portion of Java. These are cultivated at an elevation of 1250 to 1950 meters above the level of the sea, where the mean temperature is 16 to 18° C. There are more than 2,000,000 of these trees, occupying an area of 800 hectares. The quantity of alkaloid contained in the bark is equal to that found in the trees of any other country. This varies with the age of the tree, increasing with its age. The quantity of pure quinine varies from 0·50 per cent to 6. The expense of the cultivation up to September, 1877, was 1,450,000 Each year the expense is greater on account of the increase in the number of plants. It might be of interest to state that the Dutch government planted these trees with no intention of pecuniary profit, but principally for humanity's sake. There is every reason to believe that the first cost will soon be realized. When these trees are eight or nine years old, the bark may be utilized. The trees are cut about three inches from the ground. Sprouts are then grown. Only two of these are permitted to remain. After seven years, these are cut in their turn. Another plan is to pull up the tree with its roots. This is only adopted for the variety poor in alkaloids. Another method is to extract the bark while the tree is growing and fill the space with moss. Some years after, a new bark will grow. This plan is the one most generally adopted. Last year 205,000ᵏ of this bark were sold at Amsterdam, besides which large quantities are distributed to the hospitals. From what has been said, we may conclude that the cultivation has been a perfect success.

THE NEW ELEMENT—MOSANDRIUM.—From the *Comptes Rendus* of the proceedings of the French Academy, in which is published the record of the debates before the Academy as to the veritable existence of this alleged new element, we are pleased to learn that the accounts extensively published in the American journals, asserting that serious doubts had been cast upon the genuineness of Dr. J. Lawrence Smith's discovery, and to which accounts we inadvertently gave circulation, supposing them to be what they purported to be, that is, a correct statement of the academy's proceedings in the matter, were quite unwarranted. A correct abstract of what occurred in the academy in relation to this subject is given in what follows, which we give on the authority of Prof. Chase:

"Prof. J. Lawrence Smith, on September 22d, 1877, deposited a sealed packet in the French Academy, describing a new earth of the Cerium group. He sent specimens of the earth to Delafontaine, Soret, and others, who examined it, some thinking that it might be the terbium of Marignac, while others supposed that it was entirely unknown. The spectroscopic observations of M. Soret, however, demonstrated that it contained a new element, akin to the Yttria group, to which he has given the name of mosandrium, in honor of Mosander, the discoverer of terbium."

So far, therefore, from having called in question the genuineness of Dr. Smith's discovery, the savants of the academy appear to have committed themselves very decidedly to an indorsement of it—a fact which adds another to Dr. Smith's many scientific honors, and another triumph for American science.

PETROLEUM NOTES.

The Market in New York.—The *Shipping List* of the 30th ult. says:

"Crude.—There is almost no demand for crude oil, and prices remain nominal—quoted 7¼@8 cents bbls. and 5 bulk. The market everywhere is depressed.

"Refined.—Buyers continue to hold aloof, and though oil is freely offered at 9⅛ cents here, and 9¼ in Philadelphia and Baltimore, scarcely any purchases have been made during the period under review, and prices at the writing may be regarded as nominal. Oil in tin is steady, with sales of 100,000 cases, mainly within the range of 12¼@13¼ cents.

"Naphtha.—Dealers still quote 8 cents as the current price, but we hear of no sales.

"Residuum is neglected and nominal at 5¾@6c. per gallon.

"Certificates.—Business is almost at a stand, the transactions on 'Change having been confined to 35,000 bbls. United at 80⅝@81¼c. regular. Oil City very quiet at 80⅝c. bid strictly; Titusville firm, 80⅝ bid for old; Parker's quiet, 80⅝ bid, and 81¼ asked.

"LONDON, October 22.—Refined dull, 7⅝d. seller; do. last four months, dull, 7⅝d.

"ANTWERP, October 22.—Refined dull, f. 22½.

EXPORTS OF REFINED, CRUDE, AND NAPHTHA.

	1878. Gallons.	1877. Gallons.
Since our last	2,403,893	.....
Previously since January 1st	176,809,355	196,373,220
From other ports	85,002,666	79,196,370
Total	264,215,914	275,569,590

The Oil Monopoly.—The Supreme Court has decided to allow the bill presented by the Attorney-General for a preliminary injunction in connection with the oil troubles in Pennsylvania to be filed, but requires that regular notice shall be given to the defendant corporations; the argument to be heard during the session beginning November 4th. The first point to be decided will be whether the matters complained of are beyond the ordinary province of individual redress, and the stockholders of the roads interested will have the advantage of a decision by the Supreme Court on this question, rather than the possibly varying opinions of local tribunals.

COMPARATIVE SYNOPSIS OF REPORTS FOR AUGUST AND SEPTEMBER, 1878 AND 1877.

42 GALLONS = 1 BARREL.		1878. August, 31 days.	1878. September, 30 days.	1877. August, 31 days.	1877. September 30 days.
Stock at the Wells	Bbls.	104,422	104,422	109,162	109,162
Production for the month	"	1,341,928	1,315,710	1,273,759	1,214,910
Daily average production	"	43,288	43,857	41,089	40,497
Iron tank stock	"	4,613,455	4,494,940	2,743,382	2,394,495
Total stock in the region	"	4,717,877	4,599,362	2,852,544	2,503,657
Shipments out of the region	"	1,655,651	1,434,225	1,425,943	1,563,797
Number of producing wells		9,884	10,012	7,684	7,872
Number of drilling wells		185	240	417	535
Number drilling wells completed		186	174	255	322
Aggregate daily production of new wells in bbls		2,329	2,243	4,694	5,011
		July.*	August.	July.	August.
Exports from New York	Gals.	23,296,582	.....	28,532,516	21,562,004
" " Boston	"	223,477	.....	302,684	701,145
" " Philadelphia	"	5,652,318	.....	6,319,251	3,569,829
" " Baltimore	"	323,707	.....	6,985,792	4,213,686
" " Richmond	"	.....	.....	.....	1,400,900
" " San Francisco	"	22,372	.....	2,000	.....
Total exports	Gals.	32,425,456	.....	42,142,243	31,447,664
Production in Pa.	Bbls.	1,283,865	1,341,928	1,189,005	1,273,759

* Official. —*Stowell's Petroleum Reporter. October* 16, 1878.

The Standard Oil Company.—The Pittsburg *Telegraph* says of the inquiry into the alleged combination between the Standard Oil Company, the Pipe lines, and the Pennsylvania and other roads: "One result of the inquiry thus far should be noted. While the question of drawbacks and other money discriminations in the carrying of oil has not been more than touched upon, discrimination through the illegal combination of railroad, pipe-lines, and the Standard Oil Company buyers has been shown with directness and clinching force. All the allegations of the producers which have from time to time appeared in the *Telegraph*, regarding the pinching processes resorted to to compel them to either run their oil out on the ground or sell it to the Standard at prices much below the market, have been fully established as true, under oath. If the public will sift the testimony as published, they will find that out of the mouths of the most reputable witnesses, whose number might have been greatly increased, if necessary, it was proven that, while the United Pipe Line and the railroad companies claim to be distinct corporations, organized as common carriers, and pretending to give equal facilities to patrons, claiming to have no connection with the Standard Oil Company, and to do a legitimate business in a legitimate way, they have done definite illegal acts for the pecuniary benefit of the Standard Oil Company. They have taken advantage of having property of individuals in their possession, intrusted to them for a special purpose, which under their charter they are obliged to carry out, and have turned this property over to the Standard Oil Company, fixing a price themselves in compensation, and compelling the individual to take it. That they shared in the profits of the robbery was not proven, but the fact of the robbery was, and it is not unusual for the receivers of stolen goods to take all the plunder. Mr. McFarland swore that he was obliged to run several thousand barrels of oil on to the ground because he could not get the pipe-line to run it, or the railroads to take it from the terminus of the pipe, but that as soon as he consented to sell it to the Standard Oil Company at twenty cents per barrel less than the market price, it was transported at once. Whatever other result this inquiry has, it will at least have justified the producers in the minds of the public, and show that their complaints have been real. Had the officers of the railroads, the pipe-lines, and the Standard refiners testified, they would have been compelled to have acknowledged the truth, and accepted the situation, and as they pay the legal penalty for the refusal rather than be subjected to examination, the inference is plain. Mr. Thomas A. Scott, Mr. Cassatt, and others have been subpœnaed to appear at Harrisburg, but it is understood they will refuse, basing the refusal on the plea that the Pennsylvania Railroad has never accepted the provisions of the new Constitution.

A New Pipe-Line.—It has finally been decided by the producers of the Bradford district to build a pipe-line to Williamsport, to enable them to get out of the grasp of the Standard Company, and reach the seaboard by tapping competing lines of transportation. The line starts at Frisbee, and runs through Potter County into Lycoming County to Williamsport. The distance is 104 miles, and will require three pumping stations.

Russian Oil-Wells.—The recent reports concerning the discovery of oil near the shores of the Caspian Sea seem to be fully confirmed. From one of the wells a stream, free from gas and froth, is forced to a height of 75 feet, yielding at the rate of 10,000 barrels a day. It is reported that companies are forming at Odessa, Novo-Tcherkask, Astrakhan, and other cities, for the purpose of obtaining oil. Two large manufacturing concerns, who have their headquarters in New York City, recently received orders for considerable quantities of oil-line pipes, steam-pumps, engines, boilers, and other apparatus, to be shipped immediately for St. Petersburg, Russia.

Italian Oil-Wells.—These comprise about five, with a capacity of about 30 barrels per day of a thick substance of 14 gravity. They are pumped by hand, which, though primitive, is cheaper than steam, for both men and women are employed, the former receiving as compensation for a day's work one lira, equal to twenty cents; and the women sixty centessimi, equal to twelve cents of our money. The wells are located in a deep valley, and the oil carried up on the backs of donkeys to a refinery, where it is treated and yields from two to five per cent of burning oil.

Exports to Japan.—The Tokio *Times* states that the principal feature of American trade with Japan is the petroleum export from New York. The enterprise

was inaugurated only eight years ago; but the business has so increased that, while only 200 cases of kerosene, valued at $600, were exported in 1870, in 1877 366,639 cases were sent to Yokohama, and 128,158 cases to Hiogo, whither none had before been carried direct. The value of these consignments was over $1,000,000.

Japanese Refineries.—Several refineries are in operation in Japan, making kerosene from native petroleum.

The oil refinery at St. Thomas, Ont., is running day and night; 494 barrels of crude petroleum were brought from Petrolia for it in one week recently.

Peruvian Oil-Wells.—It is proposed to build a pipe-line from the refinery on the estates of Henry Meiggs to the shipping port, a distance of about 7 miles. It is stated that oil can be produced at this point for less than one cent a gallon, and as the fields have produced from time immemorial, there is no prospect of their early exhaustion.

The Chinese are increasing in great numbers in the oil regions of Pennsylvania.

GENERAL MINING NEWS.

CALIFORNIA.

THE BODIE DISTRICT.

We extract the following regarding the condition of some of the principal mines of this district from the *Standard* of October 23d:

"The main shaft of the Standard has reached a depth of 718 feet. Progress during the past week, 5 feet. The ground continues hard. The north drift, 300-foot level, has been advanced during the past week 15 feet. Total length, 480 feet. The ledge is 3 feet wide, and looks well. The west cross-cut, 450-foot level, has passed through the west Standard ledge. A drift has been started south on this ledge, which is now in 28 feet from the cross-cut. The ledge in the face is 2 feet wide, of very good ore. The stopes are looking well. On Friday last water was turned into the pipes from the Eshington spring to the mill, which supplies an abundance of water. The mill is running steadily.

"The Bruce winze in the Bodie, which is now down 82 feet, shows about the same in the bottom as it did in the early part of the week; the vein being struck following the foot-wall is still in fine ore and varies very little in width. There are several new streaks of quartz in the bottom, which, with the soft porphyry between them, show favorable indications. The stopes are unchanged, and are yielding the same. Nothing new to report in the Burgess. The new shaft is down 166 feet and looking favorable in the bottom, although they have not made much progress in sinking during the week, owing to some hard rock which was encountered. The mill is running steadily on the ore.

"*Double Standard.*—This recently-incorporated company has been taken in charge by W. A. Skidmore, M.E., who will push work forward with his accustomed energy. It is located on the south extension of the Standard and the south extension of the Summit and Linden mines. The ground is 300 feet in width and 1500 in length. Work has been done by a shaft 80 feet deep, at which point a ledge was struck, about 3 or 4 feet wide, of very fair quartz. It is intended to commence the sinking of a new shaft, which will be at once pushed to the depth of from 200 to 300 feet, when it is expected a rich gold-bearing vein will be encountered.

"*Consolidated Pacific.*—A progress of 10 feet has been made in the tunnel on Pacific vein No. 2, making a total length of about 132 feet. From the stopes the usual quantity of rich ore is being extracted. Arrangements have been made for reducing the ore from this mine at the Miners' Mill, and crushing will be commenced in about a month. When the tunnel in Pacific No. 2 has reached a point parallel with the shaft in No. 1, a cross-cut will be run east under the old workings, and stoping commenced on that ledge also. This will insure an abundance of ore for some time.

"The reports from the Bodie, Bulwer, Blackhawk, and others of our leading mines are of the most encouraging character, and add additional assurance of the permanency of our camp."

MONTANA.

THE TRAPPER DISTRICT.

From a correspondence in the Butte *Miner* of October 22d we take the following concerning this district:

"The Superintendent's office of the Hecla Mining Company occupies one end of the ore-house, which is 18×50 feet, the office being in direct communication by telephone with the engine-room. Our attention was here called to the tramway, which has a stairway up to within fifty feet of the Atlantis mine, and is covered by snow sheds. We counted the steps going up, and found they numbered 394, with a rise of eight inches each. This would make the mine 312 feet higher than the foot of the tramway. The depth of this mine is 625 feet; main shaft, 400 feet. Three hundred and fifty feet from the entrance is a level running due north 75 feet. The next chute is 200 feet deep, ¼ pitch. The steam doing the hoisting passes from the boilers through 800 feet of pipes to the engine-room, 1800 lbs. of ore being hoisted at a time. Number of men in Atlantis mine, 20; outside, 40. True Fissure, miners, 55; Construction, 20; blacksmiths, 2; Cleve, miners, 5; cooks, 4, making a total of 146 men. The True Fissure, Mountain Sheep, and Silver Quartz ore is to be lowered down the Atlantis tramway, when the tramway will be 800 feet in length.

"The company has two diamond drills on hand, and ready to be placed in position. One of these was invented by Mr. H. F. Brown.

"Amount of ore shipped from Atlantis mine, 250 tons; from True Fissure, 150 tons per week. The first assays 180 oz., the second 150 oz. per ton."

NEVADA.

THE COMSTOCK.

From the mining summary in the Gold Hill *News* of the 23d ult. we extract the following:

"The stock market for the past week has been wavering and unsteady. For this there have been two causes—one of which was the doubt engendered as to whether the Ophir and Sierra Nevada would be able to successfully handle their own and the Union Consolidated water, and the other a restless, uneasy feeling created by the disputed title to a portion of the new bonanza, both the Sierra Nevada and the Union Consolidated laying claim to it. Rumors have been rife for the past few days, derived from San Francisco sources, of a full compromise and settlement of all title by these mines, but it yet lacks official confirmation.

"The strong flow of water from the east drift in the Union Consolidated flooded the main incline shaft of the Ophir on Wednesday last, rising to a point some 50 feet above the 2100 level. The pumps and tanks were immediately set at work, when an unfortunate breakage of the shaft of one of the hoisting-engines stopped the further use of the tanks for the time being, leaving the entire work of draining for the pumps to accomplish. Since that time the pumps have been steadily lowering the water at the rate of five feet per day, and by to-morrow the engine shaft will have been repaired, and the use of the tank again secured, so that the draining of the shaft will be accomplished in a very short time.

"The flow of water in the Union drift is seventeen inches, half of which is being hoisted by a donkey pump to the 1500 level of the Sierra Nevada, from which it is taken to the surface by the pumps of that mine. No further trouble is now apprehended from the water, as the temperature is gradually cooling, proving conclusively that it is only a surface pocket.

"At the Sierra Nevada the sump of the incline is finished to a depth of 30 feet between the 2200 level, and this morning cutting out the 2200 station was commenced. It will probably take ten days to open the station and put in chutes for the ore. To-morrow opening the 2100 station will be commenced, it being the intention to drain the cross-cuts through the ore-vein on both the 2100 and 2200 levels at the same time.

"The ore in both the north drift and the winze below the 1450 level of the Alta mine is showing a steady improvement.

"The Chollar Combination shaft is now connected at a depth of 1593 feet below the surface with the Sutro Tunnel, and will, in a very short time, be also connected by a large drift with the 2000 levels of the Savage and Hale & Norcross.

"The south lateral branch of the Sutro Tunnel toward the Julia shaft is steadily advancing, and is following along the west line of the Senator ground at present in easy working vein material. It is to-day in 417 feet, leaving 983 feet yet to reach the Julia shaft. Good progress is being made enlarging the sub-drain or canal beneath the sill floor of the main tunnel, over 500 feet of it being already completed. This is being constructed of sufficient size to carry off all the water from the mines of the Comstock that may be pumped up to that level and discharged into it. Mr. Sutro is expected back from Europe shortly."

UTAH.

We learn that rapid progress is being made at the Ontario mine in repairing the damage sustained by the fire that occurred at the company's old hoisting works on the 19th ult.

The mine will speedily commence operations on the ore on hand, of which there are at the mill ready for reduction about 2000 tons. It is believed that this amount of ore will keep the mill in active operation until the mine is again in working order and the company resumes its usual mining operations.

The following dispatch was received at the company's office in this city to-day:

SALT LAKE, UTAH, Nov. 1.

To LOUNSBERRY & HAGGIN, 31 Broad street, New York:
Pumps will start Tuesday; mill about Wednesday: getting along well.
(Signed) R. S. CHAMBERS, Superintendent.

NEW PATENTS.

The following is a list of the new inventions relating to Iron, Coal, Mining Machinery, Chemical Apparatus, and the treating of Precious Metals, etc., from *The Official Gazette of the United States Patent Office*, for the week ending September 10th:

No. of Patent.	*Title of Invention.*	*Name of Inventor*	*Residence.*
207,802	Machine for Coiling Metal Bars	G. T. Evans	Poland, Me.
207,820	Safety-Valve	T. W. Richardson	Troy, N. Y.
207,827	Siphon-Condenser	George H. Starbuck	" "
207,828	Gas-Generating Burner	Isaac Stead	Philadelphia, Pa.
207,831	Steam-Generator	George B. N. Tower (a)	Cambridge, Mass.
207,867	Ore-Separator	Emory B. Hastings	Palmer, Mass.
207,870	Ore-Washer and Amalgamator	John H. Hobart	Oakland, Cal.
207,871	Elastic Packing for Pistons	Jacob C. Horton	New York, N. Y.
207,878	Ore-Separator	Tristram S. Lewis	Saco, Me.
207,885	Rock-Drilling Machine	Aaron J. Mershon	Warsaw, Ind.
207,886	Carbureter	Theodore Miner (b)	Brooklyn, N. Y.
207,887	Detritus-Pump	Eugene Moreau (c)	San Francisco, Cal.
207,893	Pump	John S. Putnam (d)	Cherokee, Iowa.
207,936	Steam-Engine and Pump	John G. Baker (e)	Philadelphia, Pa.
207,940	Steam-Generator	William T. Bate	Conshohocken, Pa.
207,945	Hydraulic Motor	William B. Cass	Blanchester, O.
207,954	Air-Compressor	Willard D. Doremus (f)	Washington, D. C.
207,968	Rotary Engine	John Jardine (g)	Glasgow, Scotland.
207,972	Reverberating Furnace	William Mann (h)	New Castle, Pa.

(a) Assignor of ½ his right to Lydie F. Renshaw, Cohasset, Mass.
(b) " to Alvin Walker, New York, N. Y.
(c) " to American Mining and Dredging Co., same place.
(d) " of ⅔ his right to S. M. Pratt and Eugene Cowles, same place.
(e) " to the Enterprise Manufacturing Co., same place.
(f) " of ½ his right to John W. Mancourt, Brooklyn, N. Y.
(g) " " " " Curtis O. Luce, Brandon, Vt. [place.
(h) " " " " William Plant, Isaac Hill, and James Mathews, same

A WORD OF CAUTION TO INVENTORS.—A recent number of the *Official Gazette* of the United States Patent Office makes a further contribution to existing literature upon the old but interesting topic of swindling attorneys and patent solicitors, who gain their livelihood by preying upon unsuspecting inventors. The officials of the Patent Office are in constant receipt of complaints from inventors who have been sufferers either by ignorance or neglect or fraud on the part of those professing to act as their attorneys. In some cases inventors who have employed these men have obtained worthless patents. In others they have been deluded into paying exorbitant fees for secret or improper influences which the attorneys have claimed to possess at the Patent Office.

The only remedy for these evils is for an inventor to employ the same caution and judgment in selecting a patent solicitor which a prudent man considers necessary in selecting any other professional adviser—as a physician or conveyancer for instance. In Boston, and all other large cities where there is a demand for patent practitioners, there are attorneys to be found of long and well-known standing who are willing and able to give inventors salutary advice. It is to these, if to any body, that the inventor should apply.—*Boston Commercial Bulletin.*

PROPOSALS.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, with the full name and address of parties soliciting the same:

Wrought and Cast-iron Work required for protecting the United States Treasury, N. Y.; Thomas R. Jackson, Supt. of Repairs, United States Court House and Post Office, New York City	Nov. 4
Grading, Flagging, etc., of Gest st., Cincinnati; John E. Bell, Pres't Board of Public Works, Cincinnati, O	" 4
Grading, Macadamizing, and Constructing Drains, Tremont st., Cincinnati; John E. Bell, Cincinnati	" 4
Grading, Macadamizing and Constructing Drains, Considine ave., Cincinnati; John E. Bell, Cincinnati	" 4
The same to Charles st., Cincinnati; John E. Bell, Cincinnati	" 4
Grading, Curbing, Constructing Culverts, etc., Third avenue, Cincinnati; John E. Bell, Cincinnati	" 4
Weather-Boarding Bridge, Port Clinton, also for Slating the same; John P. Powers, Com., Pottsville, Pa	" 4
Erection of new School House on Seventh street, Board of School Trustees Eleventh Ward; Board of Education, New York City	" 5
Putting in repair Eighth street Bridge Abutments ready for Iron Superstructure; John E. Bell, Cincinnati, O	" 7
Wrought-Iron Bridge over Quinnipiac River, New Haven, Conn.; Charles E. Fowler, City Surveyor, New Haven, Conn	" 7
Plans for Architects for Building a Jail in Covington, Ky; George H. Davidson, City Clerk, Covington, Ky	" 8
Construction of a Ditch 30 feet wide; Hyde Park, Ill.; John I. Bennett	" 11
50,000 Cross-ties for Denver and Rio Grande R. R.; R. F. Weitbrec, Treas. D. and Rio G. R. R., Colorado Springs, Col	During the Winter
Railway Construction and Working, 2000 miles; F. Braun, Sec'y Dept. of Public Works, Ottawa, Canada	Dec. 1
Establishing and Operating a Steam Ferry across the Missouri River from Sioux City to Covington, Neb.; L. B. Jackson, Mayor Sioux City, Nev	" 2
Railway Construction, 310 Miles; F. Braun, Secretary of Department of Public Works, Ottawa, Canada	Jan. 1, 1879
Gas Illumination of Rio de Janeiro, Brazil; Salvador de Mendonca, Brazilian Consul-General, 42 Broadway, New York City	March, 1879
Locks and Keys for Mail Bags; D. M. Key, Postmaster General, Washington, D. C	March 20, "
Coal for Schools of Youngstown Board of Education, Youngstown, O	March 29, 1879

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending Oct. 26th, and years from January 1st:

Tons of 2240 lbs.	1878.		1877.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co..	45,027	1,673,513	54,637	1,352,106
D. L. & W. RR. Co.	50,563	1,681,281	67,451	1,434,807
Penn. Coal Co.....	27,927	712,476	31,897	805,030
L. V. RR. Co.....	24,681	651,761	25,271	699,135
P. & N. Y. RR. Co..	853	26,024	1,000	34,436
C. RR. of N. J.....	25,316	773,670	35,519	1,008,813
Penn. Canal Co....	10,807	293,946	12,090	279,961
	185,174	5,812,671	227,865	5,614,288
Lehigh Region.				
L. V. RR. Co.....	65,462	1,928,547	88,337	2,754,622
C. RR. of N. J.....	37,510	1,067,926	36,283	1,216,404
D. H. & W. B. RR..	605	26,070	1,551	24,225
	103,577	3,022,543	126,171	3,995,251
Schuylkill Region.				
P. & R. RR. Co.....	175,703	3,942,231	156,391	5,578,577
Shamokin & Lykens Val.....	21,008	611,583	11,977	590,921
	196,711	4,553,814	168,368	6,169,498
Sullivan Region.				
Sul. & Erie RR. Co.	986	27,710	527	16,008
Total	486,448	13,416,738	522,931	15,795,045
Increase.....	.....	.....	.....	.....
Decrease	36,483	2,378,307	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

Perth Amboy Business:	Tons.
Received for the week	23,359
Shipped for the week.....	20,156
On hand Oct. 26th.....	65,839

Belvidere Delaware Railroad Report for week ending Oct. 26th:

	Week.	Year. 1878.	Year. 1877.
Coal for shipment at Coal Port (Trenton).....	557	10,419	27,214
Coal for shipment at South Amboy	8,218	350,706	462,732
Coal for distribution.....	6,510	149,240	157,841
Coal for Company's use.....	2,085	68,589	60,616

Coals Cleared on the Canals of the State of New York for the week ending Oct. 21st, and year from the opening of navigation:

Tons of 2000 lbs.	1878.		1877.	
	Week.	Year.	Week.	Year.
Anthracite	28,016	496,810	40,299	812,569
Bituminous.....	7,309	149,746	7,309	230,269
Total amount cleared	34,057	646,556	47,608	1,042,838

The increase of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania railroads amounts to 60,430 tons, as compared with the corresponding period in 1877.

The amount of coal shipped from Coal Creek, Col., for the week ending October 21st, 1878, was 1812 tons.

The Exports of Coal from Baltimore for the week ending Oct. 25th were —— tons, and since January 1st, 27,873 tons, as against 24,705 tons for the corresponding time in 1877.

The Production of Bituminous Coal for the week ending Oct. 26th was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2,240 lb.....	45,741	1,337,996
Barclay Region, Pa.		
Barclay R. R., tons of 2,240 lbs.....	6,823	250,328
Broad Top Region, Pa.		
Huntingdon and Broad Top R. R.....	3,748	123,065
*East Broad Top.....	1,302	49,026
Clearfield Region, Pa.		
*Snow Shoe.....	1,138	19,585
*Tyrone and Clearfield.....	25,189	1,030,335
Allegheny Region, Pa.		
*Pennsylvania R. R..	4,749	165,213
Pittsburg Region, Pa.		
*West Penn R. R.....	3,708	148,204
*Southwest Penn. R. R.....	526	21,101
*Penn & Westmoreland gas coal, Pa. R. R.....	10,789	536,889
*Pennsylvania R. R.....	10,957	344,378

*For the week ending Oct. 21st.

The Production of Coke for the week ending Oct. 21st:

Tons of 2000 lbs.	Week.	Year.
West Penn R. R.....	1,775	69,046
Southwest Penn. R. R.....	16,747	623,435
Penn. & Westmoreland Region, Pa. R. R.	1,112	61,945
Pittsburg, Penn. R. R.....	2,655	91,647
Penn. R. R. (Allegheny Region).....	....	12
Total...	22,289	846,085

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Nov. 1, 1878.

Anthracite.

There is still a fair business doing in anthracite coal, but it is not so large as it was a week ago, while it is notorious that some coals, especially those from the upper portion of the Wyoming field, are being sold at prices considerably below circular rates. Schuylkill and Lehigh coals have been well sold up, or even ahead, for several months. There appears to have been difficulty in moving Pittston, Lackawanna, and Scranton coals.

The Pennsylvania Coal Co. has disturbed the market by issuing a circular reducing prices for November. The following are the quotations:

Lump.....	$3.30	Stove.....	$3.75
Steamer.....	3.30	Chestnut....	3.30
Grate.....	3.40	No. 2 Chestnut.....	2.20
Egg.....	3.40		

It will be seen, that, after making allowance for the difference in freight, these prices are lower than those of the auction sale.

On Wednesday, the regular monthly auction sale took place, and the following quantities were sold, and average prices received, comparison being made with average prices received at the previous sale:

Tons.	Average prices Oct. 30th.	Average prices Sept. 25th.
5,000 steamer.....	$3.46	.....
10,000 broken....	3.57½	$3.56
10,000 egg.....	3.67½	3.68
25,000 stove	4.05	4.07½
10,000 chestnut	3.32½	3.52½
Grand average.....	$3.74	$3.79

Although the prices at the last sale show a falling off as compared with the previous one, yet the verdict of the public is that they were "bolstered." From the prices at which the same coal has been purchased since the sale, it may well be inferred that somebody gave a helping hand at the auction.

On Monday there will be, at Bethlehem, a meeting of the operators on the line of the Lehigh Valley Railroad, for the purpose of appointing delegates to confer with the other interests as to some plan for regulating the trade for 1879. So far, however, the Lehigh Valley Railroad Company appears to acknowledge no plan that will not give it 25 per cent of the total business, and the proposed meeting is by many considered not much more than an act of courtesy to those who believe that something should be done, and that the Lehigh Valley Company is receiving its full share of the whole trade already. Unless some withdraw from the positions they have taken, there is no chance of an arrangement being entered into for next year's business; but then we have seen compromises effected so often, that we do not predict what will be done. If the companies were to be guided by their experience, we should say that there would be no combination.

Our Philadelphia correspondent says: "The syndicates of money-lenders, who have sustained some of the weak corporations, are supposed to be strongly in favor of a combination, and it is supposed that their influence will be sufficient to overcome the threatened difficulties." It was this influence that brought about the present organization, and should it insist upon a new arrangement for next year, it may be possible that concessions in tonnage, that the officers of the companies may know to be ruinous to their interests, may again be submitted to.

The production of anthracite coal last week was 486,448 tons, as against 291,835 tons the previous week, and 522,531 tons the corresponding week of 1877. The total production from January 1st to October 26th was 13,416,738 tons, as compared with 15,795,045 tons for the like period of last year, showing a falling off this year of 2,378,307 tons.

Bituminous.

Although there is a liberal business doing in bituminous coal, yet there is nothing in the trade worthy of comment. A large amount of work has been done by the sales departments of the several companies toward introducing this class of fuel to the notice of those who have not used it heretofore, and it is thought that the results of this labor will be shown by an increased business next year, especially if the anthracite coal combination should be continued. As we have remarked before, if more attention were given to enlisting new consumers than to carrying on the most ruinous competition for the existing trade, it would be better for the whole interest. Certainly the producers of bituminous coals can not believe the statements they make to the public in regard to the relative advantages of this coal, as compared with anthracite, if they confine their efforts to selling, at the very low prices that now rule, to those who already acknowledge their claims. If, as is claimed, there is a greater steam-producing power in a ton of bituminous coal than in an equal quantity of anthracite, there is no reason why it should be sold in some markets at so low a price, and it only requires a proper effort to make the value of this coal known.

New York.

Wholesale Prices of Anthracite Coal for October Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2240 lbs.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
WYOMING COAL.	$	$	$	$	$	$
Lackawana, at Weehawken	3 60	3 60	3 65	3 80	4 20	3 65
*Pittston, at Newburg.....	3 55	3 55	3 65	3 75	4 05	3 50
L. Val. Coal Co., at Amboy.	.....	3 75	3 50	3 60	4 10	3 50
Kingston at Hoboken.....	3 50	3 50	3 60	3 75	4 10	3 50
Wilkes-Barre at Pt. Johnson	3 60	3 60	3 70	3 85	4 20	3 60
Plymouth Red Ash at Port Johnson.....	.....	.....	3 70	3 85	4 30	3 60
Swoyers at Eliz. Pt. or S.A...	3 60	3 60	3 60	3 75	4 20	3 60
LEHIGH COAL.						
L. V. Coal Co., at P. Amboy.	4 10	....	3 90	3 90	4 10	3 50
Cross Creek, at Port John.	4 00	3 90	3 90	3 90	4 20	3 60
Buck Mount. Vein at Elizabeth Port or S. A.....	4 25	4 00	4 05	4 25	4 25	3 60
SCHUYLKILL COAL						
At Pt. Richmond, Phila.						
Hard White Ash.	3 50	3 50	3 50	3 55	3 95	3 40
Free-burning W. Ash.	.....	.....	3 40	3 50	3 95	3 30
Schuylkill Red Ash.....	.....	.....	.....	3 75	4 00	3 30
Lorberry.....	.....	.....	3 80	3 95	4 00	3 40
Lykens Valley Vein.....	.....	.....	3 80	3 95	4 00	3 60
†*Alongside in N.Y. Harbor.*						
Hard White Ash	4 20	4 20	4 20	4 20	4 40	3 80
Free-burning W. Ash.....	.....	.....	3 90	4 05	4 40	3 80
Schuylkill Red Ash.....	.....	.....	.....	4 35	4 50	3 90
Lorberry.....	.....	.....	.....	4 60	4 60	4 25
Lykens Valley Vein.....	.....	.....	4 60	4 70	4 70	4 35

* Fifty cents per ton additional for delivery in New York.

† On coal delivered f. o. b. at the Philadelphia and Reading Coal and Iron Co.'s Wharf at Williamsburg, the current date of harbor freight will be allowed from the prices here given.

Wholesale Prices of Bituminous Coal.

DOMESTIC GAS COALS.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
Westmoreland and Penn.....	$4.25	.....
At Greenwich, Philadelphia	.....	$5.50
At S. Amboy.	5.00	5.50
Kanawha at Richmond	4.10	5.40
Red Bank Cannel, Pa., at Philadelphia..	8.00	8.50
Youghiogheny, Waverly Co., at Balt ...	4.00	5.65
Despard, West Va.....	4.50	6 00
Murphy Run, West Va., at Baltimore. ..	3.75	5.85
Fairmount, West Va., " " ...	3 75	5.70
Newburg Orrel. Md. " " ...	3.75	6.00
Cannelton Cannel, West Va	....	10.00
" Splint " at Richmond.	6.00	7.00
" Gas Coal at Richmond	4.00	5.65
Peytona Cannel, W. Va., at Richmond...		10.00

MANUFACTURING AND STEAM COALS.

Cumberland at Georgetown and Alexandria	2.75@2.90	4.35@4.50
Cumberland, at Baltimore.....	2.90@3.00	4.35@4.50
Cl'rfl'd "Eureka" and "Franklin."		
At mines.....	0.75	....
At Baltimore.....	3.25	4.50
At Philadelphia.....	3.25	4.50

FOREIGN GAS COALS.

	Sterling.	Am. cur'ncy
Newcastle, at Newcastle-on Tyne.....	7s.6d.	$2 50@ $3.50
Liv. House Orrel, at Liv....	25s.	13.00
Ince Hall Cannel "	35s.6d.	18.00
" Gas Cannel "	25s.6d.	10 00@ 10.50
Scotch Gas Cannel, at Glasgow, nominal.....	25s. Gold.	7.50
Bl'k House, at Cow Bay, N.S.	$1.75	$4.50
Caledonia, at Pt. Caledonia.	1.50	4.25
Glace Bay at Glace Bay....	1.50	4.00
Lingan, at Lingan Bay.....	1.50	....
Intern'l Mines, at Sydney...	1.75	4.50
Pictou, Vale Mines, at Pictou	2.00	4.70

Retail Prices.

Per ton of 2000 lbs.

Anthracite.

	G. & Egg.	Stove.	Chest.
Pittston coal delivered.....	$5.00	$5.00	$5.00
Lack. coal, delivered below 59th St.	4.50	4.75	4.50

Bituminous.

Liv. House Orrel.....	$18.00	American Orrel.....	$11.00
Liv. House Cannel....	18.00	Red Bank Cannel.	7.00
Am. "	11.00	Cumberland... ..	9.00
Ca'n'l't'n Bl'k, or splint.	10.00		

Hamilton, Ont. Oct. 29, 1878.

[Specially reported by H. BARNARD.]

Retail prices delivered per ton of 2000 lbs.

Scr. or Wilkes-B. Grate.	$4.75	Lehigh Lump.	$6.00
" " Egg ..	4.75	Brier Hill.....	5.00
" " Stove.	5.25	Massillon	4.50
" " Nut .	4.75	Smithing.....	5.50

From wharf or yard to the trade, 50c. per ton additional. Afloat by cargo per canal barge, 15c. per ton less than in cars at depot.

Indianapolis. Oct. 29, 1878.

[Specially reported by Messrs. COBB & BRANHAM.]

WHOLESALE BITUMINOUS.

On board cars, per ton of 200 lbs.

White River..None in market		Hocking Valley.....	4.20
Brazil Block	$2.10	Raymond City.....	3.40
Highland Grate.....	1.85	Youghiogheny.....	3.70
Indiana Cannel.....	3.65	Blossburg (smithing)..	5.25
Peytona.....	5.70	Piedmont " ..	5.25

Per car, 12 tons.

Block coal, nut	$15.00	Block Slack	$12.00
Highland, "	14.00		

RETAIL BITUMINOUS.

Delivered per bushel of 70 lbs.

Raymond City	14c.	Block Nut, steam use	6c.
Brazil Block	10	" Slack, "	5
Highland Grate	9	Virginia Cannel	24
Block Nut, domestic use	10	Indiana Cannel	15
Highland Nut, " "	11	Youghiogheny	15
" " steam	8	Blossburg	24

GAS COKE.

Per bushel, measure containing 1 88 cubic inches.

Retail, crushed	8c.	Wholesale, lump	6½c.
" lump	7	" crushed	7½

ANTHRACITE.

Per ton of 2000 lbs.

Wholesale on Cars.		*Retail delivered.*	
Wilkes-Barre, all sizes	$5 50	Wilkes-Barre, all sizes	$6.50
Lackawanna, "	5.75	Lackawanna, "	6.50
Lehigh "	6.75	Lehigh, "	7.50

Louisville. Oct. 29, 1878.

[Specially reported by Messrs. BYRNE & SPEED.]

The demand at present is very good, in the city and on railroads.

Wholesale per bushel of 72 lbs.

Pittsburg	6c.	Kentucky, in river	5½c.
Raymond City	6	Kentucky, on cars	6

Retail.

Pittsburg	10c.	City made Coke	7c.
Raymond City	9	Gas Coke	8c.
Kentucky	8	Cannel Coal	17
Hard and soft Coke	8	Anthracite, per ton	$7 00

Montreal. Oct. 29, 1878.

[Specially reported by Messrs. ROBERT C. ADAMS & Co.]

Wholesale per 2240 lbs.

Scotch Steam	$3.50	Cape Breton Steam	$2.75
Pictou	3.25	Newcastle Smith's	4.00

Anthracite at retail, per 2000 lbs. delivered.

Stove	$5.50	Chestnut	$5.00
Egg	5.15		

Milwaukee. Oct. 29, 1878.

[Specially reported by Messrs. R. P. ELMORE & Co.]

Retail price per ton of 2000 lbs.

Lehigh prepared, chippings	@$7.00
" " lump	@ 7.00
Lackawanna prepared (all sizes)	@ 6.00
Briar Hill	@ 5.00
Steam cokes	$3.75@ 4.75

New Orleans. Oct. 29, 1878.

[Specially reported by Messrs. C. A. MILTENBERGER & Co.

PITTSBURG COAL.

At wholesale (by boat-load)	27c per bbl. of 180 lbs.
To steamboats	45c. " "
" manufactories	45c. " "
" families	50c. " "
In hhds. (for shipment)	$5.00 per hhd from 5 to 6 bbls.

ANTHRACITE COAL

Per ton of 2000 lbs.

At wholesale	$7.00 to $8.00
To families etc	9 00 to 10.00

ST. BERNARD (KY.) COAL.

To steamboats	40c. per bbl. of 180 lbs.
" families	45c. " "
Virginia cannel to families	$1.00 " "

Philadelphia. Oct. 31, 1878.

The local trade continues active and the demand at tide-water fair. The scarcity of vessels has caused such a rise in freights to the East, that orders are not coming so freely, but many have accumulated. We quote rates at $1.50 to Boston, and firm at that, a considerable advance on rates ruling a few days ago. It can not be sustained unless there is a corresponding advance from New York.

It seems clear, to those who are well-informed, that the present prices can not be maintained with full work during November, as contemplated some time past. The impression now is, that when the quota for November is filled, which, for the Schuylkill region, will be by the middle of next week—the October quota having been filled last week—it will be best to stop for eight or ten days.

The syndicates of money-lenders who have sustained some of the weak corporations are supposed to be strongly in favor of a combination, and it is believed their influence will be sufficient to overcome the threatened difficulties.

Pittston, Pa. Oct. 29, 1878.

Pennsylvania Coal Company's Coal in Yard.

Retail per ton of 2,000 lb.

Lump, Egg, and Stove	$2 25
Chestnut	2 00
Pea	1 00

Delivered, 50 cents per ton additional.

Richmond. Oct. 29, 1878.

[Specially reported by S. H. HAWES, Dealer in Coal.]

Per ton of 2240 lbs. f.o.b.

Kanawha Cannel	$9.00	New River Bituminous	$3.30
Coalburg Splint	4.50	Clover Hill Coal	2.50
Lewiston "	4.50	Norwood Gas and	
Kanawha Gas Coal	4.10	Steam Coal	2.70

San Francisco. Oct. 24, 1878.

COAL.—Imports from January 1st to October 1st, 1878:

	Tons.		Tons.
Anthracite	13,804	English	31,702
Australian	109,883	Mt. Diablo	88,288
Coos Bay	23,227	Rocky Mountain	371
Cumberland	2,950	Ione	655
Bellingham Bay	2,820	Carbondale	2,724
Vancouver Island	95,362	Ounalaska	450
Seattle	77,642		

Arrivals from the north continue liberal, with free sales, at steady prices. The receipts for the week include the cargo per Frank Pendleton, from Nanaimo, 2050 tons; Arcata, 300 tons Coos Bay; Gussie Telfair, 353 tons, do.; Challenger, from Hull, with 1521 tons; the Gladstone, from Sydney, with 900 tons Shale and 440 tons coal; the Staffordshire, from Newcastle, Eng., with 600 tons coal. We have no sales to report. Prices as before noted, with a rising tendency. The Gem of the Ocean brings 1040 tons Seattle. The Majestic from Seattle has 1900 tons. The bark Kevere brings 1225 tons Wellington.

The following gives the comparative imports for the first nine months of

	1877. Tons.	1878. Tons.	Increase. Tons.	Decrease. Tons.
Foreign:				
Australian	55,159	109,883	54,724	....
English	73,062	31,702	....	41,360
Vancouver	77,039	95,362	18,323	....
Chili	7,635	....	....	7,635
Eastern;				
Anthracite	17,974	13,804	....	4,170
Cumberland	7,968	2,950	....	5,018
Domestic:				
Mount Diablo	68,638	88,288	19,650	....
Coos Bay	23,834	23,227	....	607
Bellingham Bay	8,600	2,820	....	5,780
Seattle	83,067	77,642	....	5,425
Rocky Mountain	123	371	248	....
Ione, Cal.	2,127	665	....	1,462
Carbondale, Cal.	177	2,724	2,547	....
Buckeye, Cal.	41	....	....	41
Ounalaska	40	450	410	....
Totals	425,484	449,888	95,902	71,498
Increase in 1878	24,404.			

—*Commercial Herald.*

Sandusky. Oct. 29, 1878.

[Specially reported by Messrs. BLACK & CLARKE, Agents Con Coal and Mining Company.]

Per ton of 2000 lbs.

ANTHRACITE.

	Grate.	Egg.	Stove.	Chest
Lehigh	$6 00	$6 00	$6 25	$5 75
Wilkes-Barre	4 80	4 90	5 15	4 65
Pittston	4 80	4 90	5 15	4 65

BITUMINOUS.

Massillon	$2 85	Straitsville	$2 50
Hocking Valley	2 50	Piedmont	4 10

Prices retailed delivered 50c.@75c. above car prices.

St. Louis. Oct. 29, 1878.

Reported by JAMES J. SYLVESTER, Secretary of the Anthracite Coal Association.]

Retail prices, delivered. Ton of 2000 lbs.

ANTHRACITE.

	Per ton.		Per ton.
Lackawanna	$7.50@	Lehigh	$8.50@
Wilkes-Barre	7.50@	Connells. Coke	6.00@
Schuylkill	7.50@	Blossburg	7.75@

Oct. 29, 1878.

[Specially reported by Messrs. LEWIS P. HARVEY & Co.]

BITUMINOUS.

Big Muddy	$3.65	Piedmont	$7.25
Indiana Block	3.25	Pittsburg	4.35
Illinois Coals	2.25@2.50	Peytona	7.50
Blossburg	7.75	Lehigh Val. Ant.	7.50@8.00

Toledo. Oct. 29, 1878.

[Specially reported by Messrs. GOSLINE & BARBOUR.]

We quote the following as the present prices for coal, delivered on cars here, per ton of 2000 lbs.:

Ton of 2000 lbs.

	Grate.	Egg.	Stove.	Chest.
Pittston	$5.05	$5.15	$5.40	$4.90
Wilkes-Barre	5.05	5.15	5.40	4.90
Lackawanna	5.05	5.15	5.40	4.90

Lehigh lump, $5.75.

Ton of 2000 lbs.

Straitsville lump	$2 60	Massillon nut	$2 40
" nut	2 25	Willow Bank lump	2 85
Shawnee lump	2 60	" nut	2 40
" nut	2 25	Cumberland	5 00
Hocking Valley lump	2 60	Blossburg	4 60
" nut	2 25	Morris Run	4 93
Massillon lump	2 85	Gas Coal	3 25

Retail prices, delivered in the city, are: Stove, $500; Grate, Egg, and Chestnut, $5.

FREIGHTS.

Lake Freights on Coal and Iron Ore.

Representing the latest actual charters up to Oct. 30th.

From	To	Rate per ton.	From	To	Rate per ton.
Ashtabula	Chicago	45	Cleveland	Chicago	40–45
Bay City	Milwauk'e	60	"	Milwaukee	40
Buffalo	Erie	15	"	Ashtabl'a*	90
"	Cleveland	20–25	Charlotte	Milwaukee	70
"	Portage	80	Erie	Chicago	40
"	Detroit	†40	Fairhaven	"	70
"	Chicago	25	"	Milwaukee	70
"	Milwaukee	25	Marquette	Ashtabl'a*	1.00
"	Detroit	15	Oswego	Chicago	70
"	Alpena	30	"	Milwaukee	70
"	St. Clair	65	"	Detroit	45
Charlotte	Chicago	70	Sandusky	Toronto	90
Chicago	Milwaukee	25	Toledo	Milwaukee	50
"	Green Bay	30–35	"	Cleveland*	40

* Iron ore † Salt.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to Oct. 31st, 1878.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Albany	....	1.60	....
Allyn's Point	1.00	....	....
Baltimore	40†@44	35	....
Bangor, Me	....	1.60	1.05
Bath, Me	95†	1.40	1.05
Boston, Mass	1.10@1.15	1.35@1.45	1.05
Braintree	1.15@1.50	....	....
Bridgeport, Conn.	85	1.25	1.05
Bristol, R. I.	....	....	70
Brooklyn	85	....	....
Cambridge, Mass.	1.25‡	....	1.05
Charleston	....	....	1.05
Cambridgeport	1.50‡§	....	1.05
East Cambridge	1.31	....	1.05
East Boston	....	....	1.05
Eliz'b'th City, N.C	1.00	....	....
Fall River	1.05	1.30	70
Georgetown	50	....	....
Halifax	....	....	1.50
Hartford	1.50@1.62	1.25	....
Hingham	1.25	....	....
Hoboken	....	1.15@1.20	35
Hudson	1.45	1.50	....
Jersey City	....	1.15@1.20	....
Lynn	1.25	....	1.05
Medford	1.70	....	....
Middletown	....	....	90
Nantucket, Mass.	....	....	90
New Bedford	....	1.30	70
Newburyport	....	1.50	1.20
New Haven	85	1.25	60
New London	1.07†	1.30	60
Newport	1.05	....	70
New York	85@1.00	1.25	35
Newark	....	1.30	....
Norfolk, Va	50	45	....
Norwich	1.35†‡	1.40	65
Norwalk, Conn	1.00	1.35	55
Pawtucket	1.25‡	1.45	75
Petersburg	70@75	....	....
Philadelphia	....	70	....
Portland	90@95†	1.40	1.00
Portsmouth, Va	50	....	....
Portsmouth, N.H.	1.20	1.55	1.15
Providence	1.20	1.30	85
Quincy Point	....	....	1.00
Richmond, Va	60	....	....
Rockland	....	....	1.05
Roxbury	....	....	95§
Saco	1.40	....	1.25
Salem, Mass.	1.15@1.28	1.50	1.05
Savannah	1.15@1.00	....	....
Saybrook	1.12½	....	....
Staten Island	....	....	20
St. John, N. B.	....	....	1.10
Trenton	....	1.05	....
Troy	....	1.60	....
Wareham	....	1.55@1.60	....
Washington	65@75	....	....
Williamsburg	90	....	35
Wilmington	1.00	70	....

Alexandria and Georgetown to Boston, $1.40@1.45. Washington to Wareham, $1.45. Boston to New York, 95c.@$1.05.

And discharging and towing. † And discharging. ‡ And towing. § 3c. per bridge extra. ¶ And pilotage.

Ocean Freights.

Ocean Freights on coal, iron, etc., per ton of 2000 lbs. to and from foreign and domestic ports, for four weeks ending Oct. 31st, 1878, are given below.

DATE.	From	To	Cargo.	R'te
Oct. 12	Georgetown	Aspinwall	Coal	3.50
" 12	Philadelphia	Aspinwall	Coal	3.25
" 12	Philadelphia	St. Thomas	Coal	2.30
" 12	Philadelphia	Havana	Coal	2.00
" 18	Perth Amboy	Saco, Me	Pig-iron	1.30
" 18	New York	Weymouth	Pig-iron	1.15
" 18	New York	Hyannis	Pig-iron	85
" 25	Perth Amboy	Richmond	Pig-iron	1.00
" 25	Poughkeepsie	Richmond	Pig-iron	80
" 25	New York	Boston	Iron	1.50
" 25	Curacoa	New York	Salt	9
" 25	Nevassa	Wilmington	Guano	2.25
" 25	Wood's Hole	Pensacola	Guano	1.60
" 29	New York	Paugassett	Pig-iron	95
" 29	New York	Baltimore	Guano	90
" 29	New York	Norfolk	Guano	80

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Nov. 1, 1878.

American Pig.—The Thomas Iron Company reports 1000 tons of Nos. 1 and 2 X on private terms. There is a report that about 4000 tons of North River irons, for delivery previous to the close of navigation, have been sold; also about 400 tons of Crane iron. Another furnace company is reported to be in trouble, and the end is not yet, nor is it likely to be so long as iron is sold at the prevailing prices. There is nothing to indicate an early improvement. It seems as though this can only come about by a reduction of production to a point approaching the consumptive demand, to be accomplished by so thorough

ly weakening the financial condition of some of the companies as to compel them to blow out their furnaces, after which they will not be able to start again until there is a wide margin of profit shown in making iron. We quote No. 1 Foundry at $16@$17; No. 2 Foundry, $15@$16; forge, $14@$15.

Scotch Pig.—The financial troubles in Scotland have had but little effect upon this market. Prices here are unchanged. The business continues to be confined to small sales for early local consumption. We quote Eglinton at $21.75; Coltness, $23@23.50, and Glengarnock, $22.50@$23.

Rails.—We learn of a sale of 5000 tons of steel rails at $42 at mill. There is still a good inquiry, with indications of a very active demand next year. We quote steel rails at $42@$44 at mills. Iron rails are attracting but little attention. We quote at $32@$36 at mill.

Old Rails.—We note a sale of 2000 tons on private terms. There is still a very good inquiry. We quote at $19@$20.

Wrought Scrap.—Without business we quote at $21.

Baltimore. Oct. 28, 1878.

[Specially reported by Messrs. R. C. HOFFMAN & Co.]

We quote below present prices for pig-iron and blooms; demand moderate.

Balt. Char.	$26.00@$28.00	M. & White	$13.00@$14.00
Va. "	26.00@ 28.00	C'lC.B.Blooms	50.00@ 52.00
Anth.No.1	19.00@ 20.00	" " Billetts	52.00@ 55.00
" " 2	18.00@ 19.00	Refi'd Blooms	43.00@ 45.00
" " 3	16.00@ 17.00		

Buffalo. Oct. 29, 1878.

[Specially reported by Messrs. PALEN & BURNS.]

Prices per gross ton delivered on cars at Buffalo:

	4 mos.
No. 1 Foundry	$17.50
No. 2 "	16.50
No. 3 Forge	15.00
B 1	17.00
American Scotch A 1	19.50
" " B 1	18.50
" " No. 2	18.00
" " No. 3	.....
Best selected Connellsville coke, per net ton	4.75

Chattanooga. Oct. 29, 1878.

[Specially reported by J. F. JAMES, Dealer in Iron & Metals.]

Tenn., Ala. & Ga. Charcoal, No. 1 Foundry	$16 00@$17 00		
Tenn., Ala. & Ga. Charcoal, No. 2 Foundry	15 00@ 16 00		
Tenn., Ala. & Ga. Charcoal, Gray Forge	13 00@ 15 00		
Tenn., Ala. & Ga. Coke, No. 1 Foundry	18 00@ 19 00		
Tenn., Ala. & Ga. Coke, No. 2 Foundry	16 00@ 17 00		
Tenn., Ala. & Ga. Coke, Gray Forge	14 00@ 15 00		
Charcoal or Coke, white and mottled	13 00@		
Old rails	$18 00@$19 00	Wr'ght scrap, No. 2	$11 00
Old car wh'ls.	16 00@ 17 00	Cast scrap	10 00
Wr'ght scrap, No. 1	16 00	Muck bar	30 00@ 32 00

IRON ORES.

Red hematite or fossiliferous f. o. c. at mines, about 55 per cent metallic iron	$1.25
Brown hematite about 55 per cent metallic iron	1.75

Cincinnati. Oct. 29, 1878.

[Specially reported by Messrs. TRABER & AUBERY, Commission Merchants for the sale of pig iron, blooms, ore, etc.]

There is no change to notice in our pig-iron market. Transactions have been rather light during past week, and we continue to quote:

CHARCOAL.

H'n'g Rock No. 1 Foundry & B 1	$21 00@$22 50	—4 mos
" No. 2 "	20 00@ 21 00	—4 mos
" Soft Silver Gray	19 00@ 20 00	—4 mos
" Mill	18 00@ 19 00	—4 mos
Tennessee No. 1 Foundry	21 00@	—4 mos
" No. 2 "	20 00@	—4 mos
" Mill	18 00@ 19 00	—4 mos

STONE COAL.

Ohio No. 1 Foundry	$17 00@	—4 mos
" No. 2 "	16 00@	—4 mos
" No. 3 "	15 00@	—4 mos
" No. 4 "	14 00@	—4 mos
" Mill	16 00@	—4 mos

COKE.

Ohio & W. Va. No. 1 Foundry	19 00@	—4 mos
" " No. 2 "	18 00@	—4 mos
" " Stove	17 00@	—4 mos
" " Mill	17 00@	—4 mos

CAR-WHEEL.

H'n'g R., C. B { Hecla, Vesuvius, Etna, Buckhorn, Jefferson. }	$30 00@ 35 00	—4 mos.
Maryland, " Cedar Point	35 00@	—4 mos
Missouri, " Maramec	28 00@ ...	—4 mos

BLOOMS.

Charcoal	$45 00@$50 00- cash

SCRAP IRON.

Cast	40c. @ 45c.—cash
Wrought	62½c.@ $1.00—cash

Cleveland. Oct. 29, 1878.

[Specially reported by Messrs. C. E. BINGHAM & Co.]

No. 1 Red Specular	$6.00 per ton cash.
No. 2 " "	5.00 " "
Red Hematite	4.25 " "
Lake Champlain ore	5.25 " "

FOUNDRY IRON.

No. 1 L. S. Charcoal	$22 00	Am. S., No. 1, Ch. Val.	$20 00
No. 2 " "	21 00	" " B—1, " "	18 00
No. 1 Anthracite	20 00	" " No. 2 " "	18 00
No. 2 "	19 00	No. 1, Massillon	19 00
No. 1 Bituminous	20 00	B—1, "	17 00
No. 2 "	18 00	No. 2, "	16 00

CAR-WHEEL AND MALLEABLE IRON.

No. 3, L. S. Charcoal	$23 00	Nos. 5 & 6, L. S. Char.	$23 00
No 4. " "	23 00		

BESSEMER IRON.

Nos. 1 & 2, L. S. Char	$23 00

FORGE IRON.

No. 1, Gray	$18 00	White and Mottled	$16 00

Columbus, O. Oct. 29, 1878.

[Specially reported by Messrs. KING, GILBERT & WARNER, Dealers in Pig Iron and Ores.]

There has been but little change in the condition of the pig-iron market since the date of our last report. There seems to be no disposition on the part of holders to make concessions to effect sales, and although the volume of business has not been large, prices have been well maintained. Consumers are backward about anticipating their wants at the present advance, thinking that prices will not go higher this season.

FOUNDRY IRONS

No. 1 Hanging Rock Charcoal	$22.00@$22.50
No. 2 " " "	21.00@ 21.50
No. 1 Hocking Valley soft and strong from pure limestone ores	18.25@ 18.75
No. 2 Hocking Valley soft and strong from pure limestone ores	17.25@ 17.75
No. 1 American Scotch	18.00@ 18.50
No. 1 Moxahala	18.00@ 18.50
No. 2 "	17.00@ 17.50
No. 1 Shawnee	18.00@ 18.50
No. 1 Silver Gray	16.50@ 17.00
No. 2 " "	15.50@ 16.50

MILL IRONS.

Gray neutral	16.00@ 16.50
Mottled and white neutral	15.00@ 15.50
Gray cold short	15.50@ 16.00
Mottled and white cold short	14.50@ 15.00

Louisville. Oct. 29, 1878.

[Specially reported by Messrs. GEORGE H. HULL & Co.]

There has been no quotable change in the market since our last report. There is a moderate demand for all grades. The usual time, four months, is allowed on quotations below:

FOUNDRY IRONS.

	No. 1.	No. 2.
Hanging Rock Charcoal	$21 00@$22 00	$19 00@$20 00
Southern Charcoal	18 00@ 18 50	16 50@ 17 00
H'n'g Rock, Stc'l & Coke	19 00@ 20 00	18 00@ 18 50
Southern Stonecoal & Coke	18 50@ 19 00	17 00@ 17 50

"Amer. Scotch"... $18@$19 | Silver Gray... $16@$17.00

MILL IRONS.

No. 1 Charcoal, Cold-short & Neutral	$16 00@$17 00
No. 1 Stc'l & Coke, Cold-short & Neutral	16 00@ 16 50
No. 2 Stc'l & Coke, Cold-short & Neutral	15 00@ 15 50
No. 1 Missouri and Indiana, Red-short	20 00@ 21 00
White & Mottled, Cold-short & Neutral	14 50@ 15 00

CAR-WHEEL AND MALLEABLE IRONS.

Hanging Rock, Cold Blast	$29 00@$30 00
Alabama and Georgia, Cold Blast	28 00@ 29 00
Kentucky, Cold Blast	25 00@ 28 00

Milwaukee. Oct. 29, 1878.

[Specially reported by Messrs. R. P. ELMORE & Co.]

CHARCOAL IRON.

No. 1 Lake Superior per gross ton	$23 00—4 mos.
" 2 " " "	22 00—4 mos.

ANTHRACITE IRON.

No. 1 Anthracite per gross ton	23 00—4 mos.
" 2 " "	22 00—4 mos.

STONE COAL AND COKE.

Warner's Am Sc'th (Bk.Band, per ton	$24 00@ ....—4 mos.
Soft Silvery per ton	21 00@ ....—4 mos.
Ohio Stone Coal	22 00@ ...—4 mos.

CAR WHEEL.

Lake Superior ores per ton	$24 00@25 00—4 mos

Philadelphia. Oct. 31, 1878.

[Specially reported by JUSTICE COX, JR., & Co., Iron Merchants, 333 Walnut street, Philadelphia.]

Pig Iron.—The demand for pig iron, as the closing of navigation draws near, does not quicken, as it was hoped it would. The current orders take about all the iron most furnaces are making, and if makers could get cost for their production, there would be no complaint. We report sales of 5000 tons, and quote No. 1 at $16.50 to $19; No. 2 at $15.50 to $18; Gray Forge at $15 to $17; all as to brand.

Manufactured Iron.—The mills in this city have started up, the men going in at the reduced wages. But orders are not plenty in bars, and as all Philadelphia mills make a specialty of bars, the outlook is not very bright for them. The plate-mills in this neighborhood continue busy, with orders coming in so as to keep them busy for some months. In skelp little is doing. We quote: Bars, 1 7-10 to 2c. per lb.; plate and tank, 2½ to 6c. per lb.; skelp, 1 8-10 to 2c. per lb.; all delivered at Philadelphia.

Rails.—The demand for steel rails continues good. Mills making steel rails have all they can do for some time to come. In iron the mills continue moderately busy at quoted prices. We quote: Steel, $42 to $44; iron, $30 to $36; all at mills.

Old Rails.—The demand for old rails continues good, the advance being fully sustained. We quote $18.50 to $20, as to delivery.

Scrap.—Wrought is quoted at $18 to $22; cast, $12 to $16.

Old Wheels.—The market for old wheels is dull and depressed. We quote: $17 to $18.50.

Pittsburg. Oct. 29, 1878.

[Specially reported by A. H. CHILDS.]

The condition of the market is about the same as at date of last report. Western red-short iren is in demand and firmly held at full rates, while the supply of neutral and cold-short iron continues in excess of the demand, and only the more desirable brands are meeting with ready sales. Foundry iron is dull and unchanged.

	4 mos.		4 mos.
No. 1 F'dry	$19.00@$20.00	M. & White	$15.00@$16.00
No. 2 "	18.00@ 19.00	Hot Blast Ch.	20.00@ 23.00
Gray Forge	16.50@ 19.00	Cold Blast W.	35.00@ 37.00

Richmond, Va. Oct. 29, 1878.

[Specially reported by ASA SNYDER, Esq.]

The sales of foundry pig-iron in small lots reach about 150 tons the past week, and about 100 tons gray forge.

Amer. Scotch Pig Iron	$21.50@$22.50
Anthracite " " No. 1	19.00@ 20.00
" " " No. 2	18.50@ 19.00
" " " No. 3	17.00@ 18.00
" " Mottled	15.00@ 16.00
Coke " No. 1	19.00@ 20.00
" " No. 2	18.00@ 19.00
Va. Cold Blast Charcoal Pig Iron, cold short	19.00@ 22.00
" " " " " neutral	27.00@ 28.00
" Warm " " " cold short	18.00@ 20.00
" " " " " mill	17 00@ 18 00
Old Rails	16.50@ 17.50
Wrought scrap No. 1	16.00@ 17.00
Cast scrap—Machinery	15.00@ 16.00
Richmond Refined Bar Iron	2.00@ 2.10
Horse-shoes	4.00@ .....
Mule-shoes	5.00@ ..
Old Dominion nails (standard size)	2.25 keg.

Freight by sail to New York, $1.60 for 2240 lbs.

St. Louis. Oct. 22, 1878.

[Specially reported by Messrs. SPOONER & COLLINS, Commission Agents for all kinds of Iron.]

COLD BLAST CHARCOAL—ALL NUMBERS.

Hanging Rock	$23@$25	Assorted Bar Iron	$1.95 rates.
Tennessee	22@ 23	No. 1 Wr'ght Scrap, 90c. cwt.	
Kentucky	22@ 23	Heavy cast " 65c. "	
Missouri	22@ 23	Light " 40c. "	
Georgia	22@ 23	Old rails	$19 00@$20 00
Alabama	22@ 23	Old carwheels	17 00@ 18 00

	No. 1.	No. 2.	Mill.	White and Mottl'd
Missouri stone coal	$21 00	$20 00	$19 00	$17 00
" charcoal	20 00	19 00	18 00	.....
Tennessee charcoal	20 00	18 50	17 50	.....
Tenn. coke very soft and strong	20 00	19 00	17 00	16 00
Hanging Rock charcoal	22 00	20 00	19 00	.....
" " cold short	23 00	21 00	20 00	.....
	ExNo.1	No. 1.	BNo.1.	No. 2.
Alice Hanging Rock coke.	$22 00	$21 00	$19 50	$19 00
Moxahala Black Band ores	21 00	20 00	19 50	18 00

METALS.

NEW YORK, Friday Evening, Nov. 1, 1878.

There has been a fair business done during the past week, although some articles have been quiet. The prospects are, however, that business will soon begin to slack up.

RECEIPTS OF METALS AT NEW YORK FOR THE FOUR WEEKS ENDING OCTOBER 31ST AND YEAR FROM JANUARY 1ST, 1878.

	Oct. 10.	Oct. 17.	Oct. 24.	Oct. 31.	Year from Jan. 1
Copper, bbls	211	345	478	304	20,539
Copper, boxes	.....	...	....	.....	113
Copper, cakes	309	979	1,311	827	16,256
Lead, pigs	7,820	2,015	2,132	4,945	244,786
Spelter, pieces	.....	....	4,146	774	39,447
Quicksil'r, flasks	...	....	....	....	1,221

Gold Coin.—During the week under review, the price of gold has ranged from 100⅝ to 100¼, and closed at 100¼.

Copper.—There has been but a very small business at 15⅛@15¾c., which are the closing prices. It is not strange that this article is dull, for the greater portion of requirements for several months were provided for in the last large contracts made. According to the latest cable advices, Chili bars were quoted in London at £57, and Best Selected, £63 10s.

Tin.—The sales of the past week include about 2000 slabs on spot and 100 tons to arrive, the former at 14⅛@15½c., and the latter, October and November shipments, at 13¾@13¼c. The present price of Straits is 15½c., which advance has been brought about by a scarcity of tin in this market. The quantity of tin due here this month is less than the current requirements, so that an early important decline is not probable. It is estimated that the stock in this market does not exceed 7000 slabs, 3000 of which are firmly held out of the market. The Singapore quotation of Malacca tin is $18.25, and Penang, $17.87½, with exchange at 3s. 9½d., with upward tendency. The price in London has advanced to £60, against £57 a week ago. We quote L. and F. at 14½@14¾c.; Refined, 15@15¼c.; Banca, 18@18¼c. The shipments from the Straits to the United States during the last half of October were 350 tons, and to Great Britain, 170 tons. For all of October they were to the former

country 470 tons, and to the latter 190 tons. The following is a comparison of shipments to each country from January 1st, as compared with like period of 1877.

	1878. Tons.	1877. Tons.
To United States	3,090	3,400
To Great Britain	2,537	1,885

Tin Plates.—The active demand for roofing plates, caused by the severe storm of last week, has died out, and 20 × 28 have declined to $11 per box. In other kinds there is also a quietness. We quote, per box, as follows: Charcoal, bright, ⅛ X, Melyn grade, $5.87½@$6, and Allaway grade, $5.75@$5.87½; charcoal ternes, Allaway grade, $5.25@$5.37½; coke, bright, B. V. grade, $5, and roofing, 14 × 20, $4.70.

Lead.—The sales reported for the week under review aggregate about 800 tons, at 3·55@3·70c., the lower figure being reached on delivery to be made in December. The market is firm at the close at 3·70c. The Eureka Company, which is reported to control about 5000 tons of lead in this market, is not offering it, and shows no indication of doing so. If it will continue to store the 1000 tons per month it is producing, the market will unquestionably advance; but, in doing so, we can not see what it is to gain; for when it attempts to market any considerable portion of its stock, prices must decline. The quiet season is now approaching, and we see nothing to prevent a further accumulation of stock. The San Francisco *Commercial Herald*, of October 24th, says:

"Exports include 500,000 lbs. pig lead to New York via Panama, per City of Panama. Prices of all goods in this line are more or less nominal. The Belgic this day for China has 2 0 tons lead, valued at $15,000; for Japan, 50 tons lead, valued at $5000.

"Our shipments by sea of pig lead for the nine months ending September 30th, 1878, are as follows:

To	Tons.	Value.
New York	8,478	$744,474
China	3,991	339,228
Japan	310	22,700
Victoria	30	2,809
Totals	12,809	$1,109,211

Spelter and Zinc.—Both of these articles are quiet. We quote spelter at 4⅛@5c., and sheet zinc at 5¾c.

Antimony is quoted at 12c. for Hallett's and 12½c. for Cookson's.

Quicksilver.—The San Francisco *Commercial Herald* of Oct. 24th says: "The heavy decline in Hong Kong exchange—to 12 per cent discount, or thereabouts—forms an important factor in the price of quicksilver, so much so that the parties purchasing here early in the month some 2000 flasks for Hong Kong now find the shipment likely to be unprofitable, and have been telegraphing to New York for a buyer without avail. Our latest London quotation was £6 15s. per bottle. We know of sales here during the week at 41½c., although 42c. is the general asking price, without securing bids. It is idle to attempt to put up prices here without the sympathy of London holders. Receipts for the week, 1611 flasks.

"Our exports by sea for the first nine months of—

	1877. Flasks.	1877. Value.	1878. Flasks.	1878. Value.
To				
New York	608	$19,618	.....	.....
Mexico	7,019	243,566	7,551	$247,190
Chili	325	11,485	.....	.....
New Zealand	170	5,949	174	5,610
China	27,306	971,903	13,160	441,966
Japan	378	13,948	630	20,846
Central America	32	1,166	93	3,026
Australia	1,285	45,167	360	11,913
Honolulu	1	38	.....	.....
British Columbia	19	742	30	990
South America	2,319	79,352	1,200	39,580
Calcutta	50	1,570	.....	.....
Totals	39,512	$1,394,504	23,198	$771,121

"Shipped to Hong Kong, per steamer Belgic, on October 24th, 2205 flasks, valued at $81,294."

Bullion.—Our silver market has recovered the past week, under an advance in London, which we understand to be the result of an easier feeling there in financial matters, as also from very considerable purchases in London for account of Austria for resumption purposes. If this be true, our example in this respect has not been lost, as a very large profit may be realized by buying silver at present prices, and coining it as a legal tender in the ratio we have adopted. Any further heavy purchases on this account would advance the price of silver unless Germany should resume her sales at the figures at which she last sold. For the time we may quote the market as firm on the foreign aspect, notwithstanding the small amount which it is believed our own government has purchased at its two last weekly acceptances of bids, and accepting of such bids only as were enough below the parity of the London market to make it really more advantageous to ship the silver than to sell it to our own government. The closing quotations were: London, 50¼d.; New York, 1.10.

DAILY RANGE OF SILVER IN LONDON AND NEW YORK, PER OZ.

Date.	London Pence.	N. Y. Cents.	Date.	London Pence.	N. Y. Cents.
Oct. 26	49⅞	108½	Oct. 30.	50⅜	109¾
Oct. 28	50	109	Oct. 31.	50½	110
Oct. 29	50¼	109½	Nov. 1.	50½	110

BULLION SHIPMENTS.

We give below a statement showing the latest bullion shipments in addition to those announced in our issue of Oct. 26th:

October 7th	Jefferson	Nev	$1,754.95
" 7th	Indian Queen	"	5,743.74
" 11th	Tybo Con	"	14,858.49
" 12th	Northern Belle	"	11,037.25
" 12th	California	"	94,177.46
" 12th	Con. Virginia	"	50,710.25
" 14th	Navajo	"	7,500.00
" 14th	Independence	"	12,000.00
" 16th	Hillside	"	12,300.33
" 16th	Manhattan	"	10,600.00
" 22d	Oriental Con	"	5,160.00
" 12th	Standard	Cal	36,046.99
" 17th	Bodie	"	36,535.47
" 9th	McCracken	Ariz	7,524.57
" 17th	Hackberry	"	9,132.00
" 21st	Butte	Mont	9,350.00
" 14th	Christy	Utah	5,395.00
" 18th	Germania	"	4,500.00
" 24th	Silver Reef	"	13,814.32
" 20th	Ontario	"	96,197.66

The business at the New York Assay Office for October was as follows:

Deposits of gold:		
Miscellaneous	$230,000	
United States bullion	893,000	
		$1,123,000
Deposits of silver:		
Miscellaneous	35,000	
United States bullion, miscellaneous	34,000	
United States bullion, Colorado	386,000	
United States bullion, Lake Superior	65,000	
United States bullion, Montana	80,000	
United States bullion, Nevada	26,000	
United States bullion, New Mexico	25,000	
United States bullion, Utah	44,000	
		705,000
Total deposits		$1,828,000
Gold bars stamped	$1,069,585	
Silver bars stamped	620,533	
		1,690,119
Transmitted to mint of the United States at Philadelphia, for coinage, gold		$1,868,798

The United States Mint Coinage at Philadelphia for the month of October was as follows:

Denomintiona	No. of Pieces.	Value.
Double eagles	88,230	$1,764,600
Eagles	73,780	737,800
Quarter eagles	39,520	98,800
Total gold	201,530	$2,601,200
Bland dollars	774,000	774,000
Cents	670,000	6,700
Total for month	1,645,530	$3,381,900

The Silver Bullion Bids.—The New York *Times* of to-day says: "The bids of bullion owners, for 400,000 ounces of silver, were opened at the Treasury Department yesterday. No specific information has been or will be made public for the present regarding the transaction. It is stated that less than the amount advertised for was taken by the Treasury, and that an ample supply is now on hand; and, in a general way, it is given out that offers accepted were ¼ or ⅛ cent below the London rate, which is 50¼d., or 101 57-100 cents. The market price of bullion in smaller quantities in New York—if there is any market price—has been generally regarded as above that of London. How much bullion was taken, how much was paid for it, or what was the average, or the highest and lowest limit of the offers, are facts which would be interesting to the public, but which the Treasury officials do not think it would be judicious to publish."

Salt Lake Ore and Metal Market.

SALT LAKE CITY, Utah, Nov. 1, 1878.

Argentiferous Lead (Base Bullion), $28 per ton for lead; $1.12 per ounce for silver; $20 per ounce for gold. The quotations for silver are based upon the silver in the lead of 80 to 120 ounces per ton of 2000 lbs.

The *Inter Ocean's* correspondent, under date of October 21, says: "There is still no business being done in bullion, and shipments are confined to existing contracts. The shipments for the week ending October 19 of ore, bullion, lead, and copper were as follows: Bullion—15 cars to Pittsburg, 4 cars to Chicago, 8 cars to Omaha. Lead—6 cars to San Francisco. Lead ore—12 cars to Omaha, 5 cars to Hilliard. Copper ore—1 car to Phenixville, Pa. Bullion, 569,080 pounds; lead, 128,175 pounds; ore, 248,300 pounds; copper, 21,790 pounds; total, 967,345 pounds."

Exports of Ore from San Francisco.—The exports of ores from San Francisco for the week ending October 24th, are reported by the *Commercial Herald* to have been as follows:

"To New York per David Crockett, 432 tons ores (unspecified). To New York *via* Isthmus, per City of Panama, 66,300 lbs. silver ore, and 500,000 lbs. pig-lead; to Hamburg, per same, 98 bars base bullion. The Juno carried for Liverpool, copper ore, 76,559 lbs., and of copper matte, 54,163 lbs."

For the week ending the 17th as follows:

"The ship Galatea, for Liverpool, carried 434,443 lbs. of copper ore. The ship Three Brothers, for New York, carried ores, 560 tons; pig-lead, 322,864."

FINANCIAL.

New York Stocks.

NEW YORK, Friday Evening, Nov. 1, 1878.

The coal stocks close slightly below the prices of a week ago, with a considerable lessening in the volume of the transactions. Delaware and Hudson has changed hands to the extent of 5561 shares, at from 46⅞ to 44, closing at the lower figure. In the stock of the Delaware, Lackawanna, and Western Railroad, the prices have ranged between 52¼ and 50⅛, the final price showing a recovery of ⅜ from the latter quotation. The sales amount to 135,130 shares. New Jersey Central stock stands the firmest on the list, and closes at 29 bid and asked, with sales of 5605 shares.

American Kaolin Co.—A meeting of the stockholders of this company will be held November 12th.

COUPONS AND INTEREST on the bonds of the following companies will fall due during the present month:

Albany and Susquehanna R.R. Co.—Sinking fund and equipment bonds; interest paid Delaware and Hudson Canal Co.

Buffalo Iron Works.—Coupons.

Delaware and Hudson Canal Co.—Loan of 1877; coupons.

Joliet Iron and Steel Co.—Coupons.

Lehigh and Wilkes-Barre Coal Co.—Sterling bonds; coupons.

Milwaukee Iron Co.—Coupons.

New Jersey Central Railroad Co.—Conv. bonds of 1892; coupons will not be paid.

Oswego and Syracuse Railroad Co.—Coupons paid by Delaware, Lackawanna, and Western Railroad Company.

Rensselaer and Saratoga R.R. Co.—Coupons paid by Delaware and Hudson Canal Co.

Richmond Iron Co.—Coupons.

St. Louis and Iron Mountain R.R. Co.—Coupons.

Union Iron Co.—Coupons.

Wilmington Coal and Manufacturing Co.—Coupons due.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in here, at Philadelphia and Baltimore, for the week ending the 1st inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

Stocks.	Par Value.	High'st	Lowest	Closing	Sales: Shares.
American Coal Co.	$25	.....	.....	30	.....
St.L.,I.M.& S.R.Co.	100	11⅝	10¼	11⅝	3,050
Spring Mt. Coal Co.	50	.....	.....	50	.....
*Cambria Iron Co.	50	.....	.....	58½	.....
*Penn. Salt Mf'g Co.	50	.....	.....	70	.....
*Westm'land C. Co.	50	.....	.....	50	.....
*Buck Mt. Coal Co.	50	.....	.....	38	.....
*Schuyl. Nav. Co.	50	.....	.....	.....	.....
†B.&O.RR.Co.1st pf	.....	.....	.....	96	1
†B.&O.RR.Co.2d pf	100	.....	.....	85	.....
" " " com	90	81	80½	80¼	30
†George's C'k C. Co	100	.....	.....	86½	.....
†S. Clara M'g Co.	100	.....	.....	25	.....
†Atlantic Coal Co.	10	.....	.....	90	.....

Bonds.	Prince'l When Due.	Int'est When Due.	Hig'st.	Lowest.	Amount.
D., L. & W., 7s, conv	1892	J. & D.	.....	.....	.....
" " " " 2d mtge.	1881	M. & S.	.....	.....	.....
N.J.C., 1stmtge.new	1890	F. & A.	114	.....	3,000
" " " 1st mtge.,con	1899	Q.	68¾	68	*15,000
" " " convt.	1902	M. & N.	81	.....	†16,000
Lehigh & W. B., con	1899	Q.	60	.....	‡11,000
Am. Dock & Imp. 7s	.....	J. & J.	.....	54	.....
St.L.I.M.& S..1st mt	1892	F. & A.	108½	106	12,000
Ches. & O., 1st mtge	1899	M. & N.	27½	.....	4,000
D & H C Co.,1stm.rg	1884	J. & J.	97	.....	1,000
" " " " " "	1891	J. & J.	98½	.....	1,000
" " " " m.loan cp	1894	A. & O.	97	.....	5,000
" " " " " rg.	1894	A. & O.	.....	.....	.....
" " " " new mge.	.....	.....	.....	.....	.....
*L.V.R.,1stm.6s.cp.	1898	J. & D.	.....	.....	.....
" " " rg.	1898	J. & D.	.....	112½	.....
" " " 2d m. 7s,rg.	1910	M. & S.	.....	.....	.....
" " " con.m.6s,rg	1823	J. & D.	.....	.....	.....
" " " 6s cp.	1923	J. & D.	101½	.....	2,000
*Pa.RR.,1st m.6s,cp	1880	J. & J.	.....	105	.....
" " g. m., 6s, cp.	1910	J. & J.	.....	108	.....
" " " 6s, rg.	1910	A. & O.	.....	107½	.....
" " con.m.6s,rg.	1905	Q.	97	.....	7,000
" " " 6s, cp.	1905	J. & D.	97	.....	26,000
" " new loan, 5s	.....	.....	.....	.....	.....
*P.& R. R., 1st m.6s, R. C. 43-44	1880	J. & J.	.....	104½	.....
P. & R. R., 1st m. 6s, R. C. 48-49	1880	J. & J	.....	.....	.....
P.& R. R.,2d m.7s cp	1893	A. & O.	109	.....	1,000
" " " scrip	1882	J. & J.	52	.....	2,785
" " " in.m.7s,cp	1896	J. & D.	.....	.....	.....
" " " c.m.7s,cp.	1911	J. & D.	100½	100¼	18,000
" " " " 7s. rg.	1911	J. & D.	101	.....	7,000
" " " cvt.7s,R.C	1893	J. & J.	.....	.....	.....
" " C.& I.Co.,Deb 7s, R. C.	1892	M. & S.	.....	.....	.....
& R.C.& I. Co., m. 7s, R. C.	'92-3	various	.....	.....	.....
L. Nav. Co.,6s,rg.m.	1884	J. & D.	104½	104¼	1,100
" " RR., rg. m.	1897	F. & A.	.....	104½	.....
" " cvt. co. G. R.	1894	M. & S.	.....	94½	.....
" " " Gold R. C.	1897	J. & D.	.....	.....	.....
" " con.m.7s,rg.	1911	J. & D.	.....	.....	.....
*P.& N.Y.C.,7s,R.C.	1896 / 1906	J. & D.	.....	.....	.....
*Pa Canal, 6s. cp.	1910	J. & J.	62½	.....	7,000
*Schuyl.Nav.,1st m. 6s. rg	1897	M. & O.	.....	.....	.....
*Sus.Coal, 6s, rg.	1911	J. & J.	.....	.....	.....
†Balt.&O. RR., 6s.	1880	J. & J.	102¾	.....	2,000
" " " " 6s.	1885	A. & O.	.....	.....	.....

Total transactions for the week.....$141,885

* Assented. † $15,000 assented, selling at from 68@67½. ‡ 6000 do. selling at from 40@38 per cent.

Philadelphia Stocks.

PHILADELPHIA, Friday Evening, Nov. 1, 1878.

Quotations of coal stocks on the Philadelphia market generally close at fairly-maintained prices; the sales scarcely equal in amount those reported in our last. Lehigh Coal and Navigation stock closes at 16, which is a slight advance on the quotation of a week ago; the sales amount to 1778 shares. Lehigh Valley has been sparingly dealt in, the sales amounting to

COAL STOCKS.

Name of Company.	Capital Stock.	Shares. No.	Shares. Par Val.	Last Dividend. Mo.	Y.	A't.	Rate per Ann.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted, so much per share. Oct. 26. H.	Oct. 26. L.	Oct. 28. H.	Oct. 28. L.	Oct. 29. H.	Oct. 29. L.	Oct. 30. H.	Oct. 30. L.	Oct. 31. H.	Oct. 31. L.	Nov. 1. H.	Nov. 1. L.	Sales.
	$		$				Per c'nt													
Consol. Coal.	10,250,000	102,500	100	Jan.	77	2½	...													
Del. & H. C..	20,000,000	200,000	100	Aug	76	4	9	45⅞	44¾	46⅝	44¾	46⅞	46¼	45⅝	44¾	46	45½	.....	.....	5,561
D., L. & W. RR	26,200,000	524,000	50	July	76	2½	5	51⅜	50½	51¼	50½	52¼	51⅜	51⅜	49⅜	51⅜	50⅜	51	50¼	135,130
Lehigh C. & N	10,448,550	208,971	50	Nov	76	1½	5½	16¼	16	.....	.....	16¼	16	16¼	16½	.....	.....	16⅜	16	1,778
Leh. V'y R. R	27,228,855	540,858	50	July	78	1	...	37¾	37⅜	37¾	37⅛	37¾	37½	37⅞	37⅞	37¾	37¾	37⅞	37⅛	1,015
Maryl'd Coal	4,400,000	44,000	100	Jan.	76	1½	1½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. J. C. R. R.	20,600,000	206,000	100	Apr	76	2½	2½	29⅝	29	29¼	29¼	30	29¼	29⅜	29	30	29¼	29	29	5,605
Penn. Coal...	5,000,000	100,000	50	May	78	3	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. R. R...	68,870,200	1,337,404	50	May	77	1½	3	33¼	33¼	33¼	32⅞	33⅛	32⅞	33¼	33	33¼	33½	33¼	33⅛	29,579
Ph. & R. R. R	34,278,175	685,563	50	Jan	76	+2¼	10	13½	13¼	13¼	13	13½	13	13½	13⅛	13½	13¼	13⅜	13⅜	28,033

The Delaware and Hudson Canal Co. has paid in dividends to date $38,821,104, and the Philadelphia and Reading $43,012,497.
Total Sales.... .....206,701.

only 1015 shares; the closing price, however, shows an advance. Reading stock shows an improvement, closing at 13⅝, with sales of 28,033 shares; 29,579 shares of Pennsylvania Railroad stock have changed hands at from 32⅛ to 33⅛, closing at 33¼. This company to-day agreed upon a semi-annual dividend of 2 per centum. It was decided that when dividends are announced hereafter they shall be declared semi-annually, instead of quarterly, as heretofore.

The *Ledger* says:

"As the Pennsylvania Railroad establishes four per cent per annum in dividends, its stock will very naturally go to $40 per share in the market, as at that price it will pay five per cent per annum, a return that will invite investment to it, especially as the promise is steadily held forth of larger dividends from annually expected increase of business. The situation of the company, financially as well as in its working condition, is reported as now better than it has been at any time before in several years. Those stockholders who are dependent on dividends arising from the revenues of this company are to be congratulated on the arrival of the time when dividends may be announced, with reasonable assurance that they will be maintained and regularly paid. One good effect will follow the resumption of dividends by this company, and that is, the confidence that it will give to credit and to business generally, and especially the firmer tone that it will impart to the whole stock market. The cause that has depressed all business for the past few years is gradually being overcome by industry and economy, and to the extent that progress is made in this direction is there increased power to achieve more in the future. What we report as already effected we are constrained to believe is but the beginning, and that there will be neither halting nor going backward in the most desirable change."

Coupons on the bonds of the following companies fall due during the present month:

Catawissa R.R. Co.—Coupons paid by the Philadelphia and Reading R.R. Co.

Delaware and Raritan Canal Co.—Coupons paid by Pennsylvania R.R. Co.

James River and Kanawha Canal Co.—Coupons.

North Pennsylvania R.R. Co.—2d mortgage 7 per cent bonds; coupons.

Scioto and Hocking Valley R.R. Co.—Coupons.

Schuylkill Navigation Co.—Boat and Car Loan and Improvement Bonds; coupons.

Shickshinny Coal and Iron Co.—Coupons.

Gas Stocks.

NEW YORK, Friday Evening, Nov. 1, 1878.

The unsatisfactory condition of the market for gas stocks, as noted in our last, still prevails. We are reported, however, no change either in business or prices.

The Mortgage of the Mutual Gas Co.—On the 26th ult. this company filed in the Register's office a chattel mortgage for one million dollars to Robert N. Galloway and Albert G. Thorp, Jr., as trustees. The mortgage is a renewa- of one executed August 1st, 1872, and is signed by Cornelius K. Garrison and Charles A. Place, the President and the Secretary of the Company. The mortgage recites that the Company have issued one thousand bonds of one thousand dollars each, at seven per cent interest, payable semi-annually, the principal being due August 1st, 1872. The property conveyed to the mortgagors consists of the ground bounded by Eleventh and Twelfth streets, Avenue D and the East River, the pier at the foot of Twelfth street, East River, and the wharves, docks, and right, deeded by Cornelius Vanderbilt to William H. Vanderbilt, February 9th, 1869, and by the latter conveyed to his wife, Maria Louisa Vanderbilt, who deeded it to the Mutual Gas-Light Company in April, 1870.

The Gas Question in San Francisco.—The *Commercial Herald* attributes the recent decline in the English gas stock market to the failure of the Bank of Glasgow, and says: "It is well known that many of our securities, particularly gas-light stock, is held by English houses here for foreign account. Much of the stock has been ordered sold, owing probably to the English panic. This, in connection with an article published in a New York paper on electric light, has caused a temporary decline. It is a singular fact that the largest holders of gas-light stock, and those the best posted on the electric light, don't scare at all. Sales of about 800 shares have been made at 94@91, and 780 shares at 90."

A New Electric Light.—A public exhibition of the Sawyer-Man electric lamp, manufactured by the Electro-Dynamic Light Company, was given, on the 29th ult., at the office of the company, corner of Walker and Elm streets. The lamp is the invention of W. E. Sawyer, of this city, and Albon Man, of Brooklyn, and it is claimed by them that they have overcome all the difficulties that have prevented the universal adoption of the electric light. The lamp is inclosed in a hermetically sealed glass globe, filled with nitrogen gas and some secret preparation, and consists of a small piece of carbon about the size of an ordinary pin, heated by electricity to a high temperature. As there is no oxygen in the globe, the carbon is not consumed, and thus a steady light is obtained. The inventors claim that a steam-engine of 1000 horse-power will produce the light of 30,000 five-foot gas-burners, at a cost of $10 per hour, while at the present rates the cost of 150,000 feet of gas required per hour to produce the same amount of light would be $412.50. Another important point in this invention is that the light is completely under control, and may be reduced to that of a taper or increased to that of thirty gas-burners. The experiments were with five lights, and they were very successful. A general wish was expressed, however, for a test on a much larger scale."

The Edison Electric Light.—According to the *Scientific American*, Mr. Edison's system of lighting is based on the well-known fact that a wire may be heated by an electric current in the same manner as wires are now heated temporarily and used for instantaneously lighting gas in large public halls, such as the Academy of Music. The coil of platinum wire heretofore used simply for lighting gas is to be made itself the source of the new electric light, the coil being made white hot or self-luminous by an electric current. It is said that Mr. Edison has invented a simple device for preventing fusion of the wire by checking the flow of the current as the wire approaches the point of fusion, and that he has fully succeeded in getting a steady glow of pure light. Admitting that to be true, and that he can produce a large number of these wire lights, there still remains the question of economy or relative cost before Mr. Edison's electric light can be pronounced a dangerous rival to other methods of lighting dwellings and public halls. As to this we have only the general estimate of the inventor that it is cheaper than gas, but how much cheaper he does not know.

An Electric Light Company in Chicago.—CHICAGO, October 29.—The Western Electric Light Company filed a petition for incorporation, with a capital of $200,000, on the 29th ult., the object being to light cities and buildings by electricity.

The following list of Companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 30 Broad street, New York:

Companies in New York and Vicinity.	Capital Stock.	Par.	Dividends. Rate per ann.	Am. of last.	Date of last.	Quotations Bid.	As'd
	$		P. ct.				
Mutual, N. Y....	5,000,000	$100	6	1½	Oct., '78	50	62
" Bonds...	90,000	1,000	6	3½	Aug., '78	95	103
N. York "	4,000,000	.....	8	4	May, '78	75	85
Metrop. "	2,500,000	100	10	5	Aug., '78	100	.....
" Certfs...	1,000,000	.....	7	3½	" '78	95	98
Harlem "	1,850,000	50	6	3	Feb., '78	35	40
Manhat. "	4,000,000	50	.....‡	5	May '78	145	155
Brooklyn, Bkln.	2,000,000	50	15	5	Apr., '78	110	120
Nassau	1,000,000	25	.....‡	3	July, '78	50	56
" Certfs...	700,000	1,000	7	3½	May, '78	80	86
People's.....	1,000,000	10	.....‡	3½	Jan., '76	16	22
" Certfs....	300,000	1,000	7	3½	July, '78	75	90
" Bonds...	325,000	.....	7	3½	May, '78	90	96¾
Metrop. "	1,000,000	100	5	2½	May, '78	50	60
W'msb'g "	1,000,000	50	8	1½	July, '78	.....	90
" Certfs...	1,000,000	.....	7	3½	July, '78	.....	98
Citizens'.....	1,200,000	20	.....‡	3	July, '78	55	65
" Certfs...	320,000	1,000	7	3½	Apr '78	90	98
J. C., N. J.....	750,000	20	10	7½	July, '78	140	150
Municipal, N.Y.	466,000	50	.....	.....	.....	80	92
" Bonds..	750,000	.....	.....	.....	.....	.....	...
.....	.....	.....	.....	.....	.....	.....	...

Copper Stocks.

Reported by WILSON W. FAY & Co., Brokers in Mining and Miscellaneous Stocks, Room 7, Traveller Building, 31 State street.

BOSTON, Wednesday Evening, Oct. 30, 1878.

The market shows no special change from last week, with the exception of a slight rise in Duncan and a decline in Calumet and Hecla. It is needless to say how dull these stocks are at present, for the small number of transactions in them is sufficient evidence of the fact, and it is also useless to attempt to deny the fact that the interest which was formerly taken in them has been transfe red almost entirely to the California stocks, and there is even now a rumor on the street that Duncan and International are to be placed upon the San Francisco market, and if such proves to be the case, the Boston mining stocks will be even more dull than at present. Grand Prize, Consolidated Virginia, California, Leopard, Silver Islet, Kossuth, etc., seem to be the most lively of the mining stocks, together with Duncan and International of the Boston market, and have left the old "coppers" almost entirely in the shade.

Calumet and Hecla has declined to 174 sales, and is now offered at that, and 173½ bid.

Copper Falls is weak at 1¼@1½.

Franklin closes at 5@5⅜, and no sales.

Osceola sold at 11⅛ and 11, and is now offered at 11 and 10½ bid.

Pewabic is unchanged.

Quincy is a little firmer at 12@12½, and sales at 12.

Ridge sold down to $1, but closes firm at 1@1¼.

Duncan is very firm at 4⅜@4½, having sold at 4½ and 4⅜, the company having received encouraging news from the mine, and the stock looks as though it would go higher.

Silver Islet has jumped to 35 bid and 37 asked, there being reports current of immense amounts of ore being taken out of the mine.

International is firm at 50@55, and no sales.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Nov. 1, 1878.

There has been a very fair business done in mining stocks the past week, but still the aggregate of sales is below that of the previous week. The San Francisco stocks have received liberal attention. We note the following transactions in this market: California, 235 shares, at $12@$11½; Consolidated Virginia, 270, at $12½@$11½; Eureka Consolidated, 20, at $42@$36; Independence, 1230, at $2.60@$2.95; Leeds, 280, at $1.75@$2.25; Tip Top, 40, at $1.75; Hussey, 350, at 50@48c.; Kossuth, 100, at 36c.; Leviathan, 100, at 90@85c.

Of our regular list we note the following sales: Bobtail, 100 shares at $2½; Hukill, 350, at $4.10@$4.25; Moose, 950, at $4@$4.50; New York and Colorado, 6535, at $2@$1.50; Ontario, 290, at $40¼@$30@$35; Plumas, 4350, at $4@$3.80; American Flag, 15,800, at 24@29c.; Bertha and Edith, 22,400, at 6@8c.; Buckeye, 2600, at 58@55c.; Cleveland, 200, at $1.55@$1.50; Dahlonega, 9900, at 20@16c.; Findley, 45,300, at 57@65c.; Gold Placer, 41,600, at 35@26c.; Lacrosse, 75,600, at 51@46c.

There have been no important features to the business of the week. Cleveland has again assumed a position in the list of stocks dealt in. A *Graphic* reporter has interviewed the principal holders of Moose, who do not give hopes of dividends being declared inside of six months.

In our last we noted a monthly dividend of 8 cents per share payable on the stock of the Empire Gold Mining Co. We have since had access to a report upon the property by high authority—Mr. Wm. Ashburner, Mining Engineer, of San Francisco. His report bears date August 21st, 1878, and from it we glean the following information, which is well worthy of the attention of capitalists:

"The mine is located at Plymouth, Amador County, California. The claim is 1900 feet long, and is on what is known as the 'Great Mother Vein' of California. The average width of the vein upon the company's property is from 35 to 40 feet. The whole body of the vein, without selection, is sent to the mill and yields from $6 to $12 per ton. The mine is opened by two shafts, one of which i down 1145 feet, and the value of the ore has steadily increased with depth. The yield of the mill for two months—June and July—was $56,921.11, equal to about $9.50 per ton. In addition to this, there were taken out of the ore and treated 82½ tons of sulphurets, which gave a yield of $9526.04. The actual value, however, of all of the sulphurets saved (a portion of which were not treated) was over $16,000, which would bring the total value of the ores up to over $12 per ton."

Mr. Ashburner estimates that there are 154,000 tons of ore "in sight," with a gross value in free gold of over $1,300,000, and net value, after deducting $4 per ton for mining and milling, of $698,000. To this, however, he adds 3500 tons of sulphurets, which, based upon their past yield, would give $404,250. Deducting therefrom $25 per ton, cost of working sulphurets, leaves a net value of $316,750. This, added to the free gold product, gives as the total net value of the ore "in sight," $1,014,750. He estimates that the mine should pay per month, $18,000 to $29,500 net profits, equal to 0·9 to 1·475 per cent per month upon the par value of the capital, or double that upon the selling price of the stock.

There is upon the property an 80-stamp mill with a capacity of 3000 tons per month. There are works for concentrating the sulphurets, which are afterward worked by private parties, who are paid $25 per ton, and guarantee 80 per cent of the assay value.

He expresses great confidence in the permanency of the mine, and thinks that great value will be added to it by future developments, and that the mine will last for years to come.

The capital stock of the company is $2,000,000, divided into 200,000 shares of the par value of $10 per share. The company is organized under the laws of New York.

The representative of the property in this city is Mr. S. V. White, of No. 8 Wall street, who not only secured the advice of Mr. Ashburner before connecting himself with the enterprise, but also that of Mr. Louis Janin. As these two gentlemen are among the most prominent and reliable mining experts in this country, their indorsement of the property should do much to assure the public of its value. The East is sadly in want of really valuable mining stocks, under Eastern control, in which it can invest, and we welcome this property to our market, with the belief that it will prove a satisfactory investment to those who take the shares.

GENERAL MINING STOCKS.

Dividend Paying Mines.

Name and Location of Company.		Feet on Vein.	Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total levied to date.	Assessments. Date and amount per share of last.		Dividends. Total paid to date.	Dividends. Last Dividend.			Rate p. An	Highest and Lowest Prices per Share in Currency at which Sales were Made. Oct. 26. H.	Oct. 26. L.	Oct. 28. H.	Oct. 28. L.	Oct. 29. H.	Oct. 29. L.	Oct. 30. H.	Oct. 30. L.	Oct. 31. H.	Oct. 31. L.	Nov. 1. H.	Nov. 1. L.	Sales.
Alps	Nev.	800	.....	30,000	.....	204,000	Sept.	1878 $1 00	37,500	Apr.	1876	$0 50	..	....	....	....	....	....	....	....	....	....	....	....	.....
American	Col.	.....	1,000,000	100,000	10	*	.....	.....	80,000	Sept.	1878	0 10	12	....	....	....	....	....	....	....	....	....	....	....	...
Belcher, g. s.	Nev.	1,040	10,400,000	104,000	100	1,288,200	July	1878 1 00	15,397,200	Apr.	1876	1 00	12	....	....	....	....	....	....	....	....	....	....	....	.....
Bobtail, g.	Col.	2,500	1,136,630	227,326	5	*	.....	.....	56,831	Nov.	1877	25	....	....	....	....	2½	....	....	....	....	....	....	....	100
Bobtail Tunnel, g.	Col.	.....	100,000	20,000	5	52,000	July	1873 0 30	48,000	June	1878	50	....	....	....	....	....	....	....	....	....	....	....	....	...
Bodie, g.	Cal.	.....	5,000,000	50,000	100	25,000	Feb.	1878	650,000	Oct.	1878	2 00	20	....	....	....	....	....	....	....	....	....	....	....	.....
California, g. s.	Nev.	600	54,000,000	540,000	100	.....	.....	.....	29,160,000	Aug.	1878	1 00	24	....	.....	12	....	....	....	....	....	....	....	11⅝	11½	235
Calumet & Hecla, c.	Mch	.....	2,000,000	80,000	25	1,200,000	.....	.....	13,450,000	Aug.	1878	5 00	20	175	.....	175	174¾	174½	.....	174	.....	....	....	....	147
Central, c.	Mch	.....	500,000	20,000	25	100,000	June	1862 0 65	1,260,000	Feb.	1878	5 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Chollar Potosi, g. s.	Nev.	1,400	2,800,000	28,000	100	1,750,000	Sept.	1878 5 00	3,040,000	Feb.	1872	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Copper Falls, c.	Mch	.....	1,000,000	20,000	50	535,000	May.	1876	100,000	Nov.	1871	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Cons. Virginia, g. s.	Nev.	710	54,000,000	540,000	100	474,600	June	1873 3 00	40,500,000	June	1878	1 00	12	12½	12	12	....	....	....	....	....	12¾	11½	....	....	270
Confidence, g. s.	Nev.	130	2,496,000	24,960	100	256,320	Apr.	1878 0 50	78,000	May.	1865	8½	8½	....	....	....	....	....	....	....	....	....	....	....	.....
Cons. Her. & Roe.	Col.	16,500	1,000,000	100,000	10	*	.....	.....	120,000	.....	.....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	.....
Crown Point, g. s.	Nev.	600	10,000,000	100,000	100	1,873,370	Sept.	1878 1 00	11,588,000	Jan..	1875	2 00	24	....	....	....	....	....	....	....	....	....	....	....	.....
Daney	Nev.	2,000	.....	108,000	.....	70,200	July	1877 0 20	56,000	July	1863	1 10⅝	....	....	....	....	....	....	....	....	....	....	....	....	.....
Eureka Cons., g. s. L.	Nev.	.....	5,000,000	50,000	100	100,000	.....	1876 1 00	2,950,000	Aug.	1878	3 00	24	42	.....	.....	.....	.....	.....	36	.....	.....	.....	.....	20
Eureka G. Mg., g.	Cal.	1,680	2,000,000	20,000	100	.....	.....	.....	2,149,000	Apr.	1878	0 25	....	....	....	....	....	....	....	....	....	....	....	....	.....
Franklin, c.	Mch	.....	500,000	20,000	25	360,000	June	1876 5 00	585,000	Nov.	1871	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Gila	Ariz	.....	.....	100,000	....	50,000	Apr.	1878 0 25	50,000	Aug.	1875	0 25	....	....	....	....	....	....	....	....	....	....	....	....	.....
Gould &Curry, g. s.	Nev.	612	10,800,000	108,000	100	2,666,000	Apr.	1878 1 00	3,826,800	Oct.	1870	10 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Grand Prize	Nev.	1,500	.....	100,000	....	100,000	July.	1878 1 00	400,000	Feb.	1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Hale & Norcross, g. s.	Nev.	400	11,200,000	112,000	100	2,914,000	Aug	1878 1 00	1,598,000	Apr.	1871	5 00	12	....	....	....	....	....	....	....	....	....	....	....	.....
Hukill, g. s.	Col.	3,288	1,000,000	100,000	10	*	.....	.....	.....	Oct.	1878	0 10	12	.....	.....	.....	.....	4.15	.....	4.15	4.10	4.10	.....	4¼	4.10	350
Independence	Nev.	1,500	.....	100,000	.....	55,000	Feb.	1878 15	15,000	Aug.	1878	25	....	2.85	2.60	2.85	2.65	2.95	2.90	2¾	.....	2.90	2.75	2.85	....	1,230
Kentuck, g. s.	Nev.	95	3,000,000	30,000	100	300,000	Aug.	1878 1 00	1,252,000	Mar.	1870	5 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
K. K Cons.	Nev.	.....	.....	50,000	.....	200,000	Sept.	1878 1 00	50,000	Sept.	1873	0 25	....	....	....	....	....	....	....	....	....	....	....	....	.....
Leeds	Uth.	3,000	.....	60,000	.....	.....	.....	.....	60,000	Sept.	1878	0 15	....	....	....	1.90	....	2	1¾	....	....	....	....	2¼	....	280
Leopard, L. g. s.	Nev.	1,500	5,000,000	50,000	100	150,000	June	1878 50	162,500	Dec.	1876	0 50	...	....	....	....	....	....	....	....	....	....	....	....	.....
Manhattan	Nev.	.....	.....	50,000	.....	.....	.....	.....	400,000	Feb.	1877	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Merrimac, s.	Mas.	1,500	500,000	100,000	5	*	June	.....	120,000	Mar.	.....	.....	12	....	....	....	....	....	....	....	....	....	....	....	.....
Minesota, c.	Mch.	.....	1,000,000	20,000	50	436,000	.....	1869 1 00	1,820,000	Mar.	1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	.....
Modoc	Cal.	4,000	.....	100,000	....	350,000	Sept.	1878 0 50	50,000	Dec.	1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	.....
Moose	Col.	39,000	2,000,000	200,000	10	*	.....	.....	550,000	Mar.	1878	0 25	10	4	.....	4	.....	4	.....	4.10	....	4½	4.20	4	.....	950
National, c.	Mch.	.....	500,000	20,000	25	195,000	Oct..	1875 1 00	380,000	Oct.	1873	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
N. Y. & Colorado, g.	Col.	.....	1,000,000	50,000	20	*	.....	.....	20,000	Mar.	1877	0 20	....	2	.....	2	.....	1.95	1½	1¾	1.30	1.60	1.45	1.60	1.55	6,535
Northern Belle, s.	Nev.	1,600	5,000,000	50,000	100	.....	.....	.....	1,425,000	Feb.	1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Ontario..	Uth.	3,000	10,000,000	100,000	100	.....	.....	.....	1,800,000	Oct.	1878	1 00	12	40¼	.....	38	.....	35	30	35	32	35	.....	.....	...	290
Ophir, g. s.	Nev.	675	10,080,000	100,800	100	3,336,000	Sept.	1878 1 00	1,394,400	Mar.	1864	4 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Pewabic, c.	Mch.	.....	500,000	20,000	25	185,000	June	1868 3 00	460,000	July	1873	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Phoenix, c.	Mch.	.....	1,000,000	20,000	50	817,500	Sept.	1870 3 00	20,000	Jan.	1876	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Plumas	Cal.	.....	1,000,000	100,000	10	.....	.....	.....	80,000	Oct.	1878	10	....	4	3.80	....	....	4	3.85	3.95	.....	3.90	3.85	4	3.80	4,350
Polar Star, g. s.	Col.	1,300	500,000	50,000	10	*	.....	.....	5,000	Jan.	1878	0 10	....	....	....	....	....	....	....	....	....	....	....	....	.....
Quincy, c.	Mch.	.....	200,000	20,000	10	.....	.....	.....	2,230,000	Feb.	1878	5 00	....	....	....	12	....	....	....	....	....	....	....	....	.....	115
Raymond & Ely, g. s.	Nev.	5,000	3,000,000	30,000	100	600,000	Aug.	1878 1 00	3,075,000	Sept.	1873	3 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Ridge, c.	Mch.	.....	500,000	20,000	25	200,000	.....	.....	90,000	Feb.	1875	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Rye Patch	Nev.	1,600	.....	30,000	....	97,500	Nov.	1876 0 50	105,000	Dec.	1877	0 25	....	....	....	....	....	....	....	....	....	....	....	....	.....
St. Joseph, L.	Mo.	2,000 acs.	1,000,000	100,000	10	.....	.....	.....	250,000	.....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
Savage, g. s.	Nev.	800	11,200,000	112,000	100	3,972,500	Sept.	1878 1 00	4,460,000	June	1869	3 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Seaton, g. s.	Col.	1,700	500,000	50,000	10	*	.....	.....	10,000	May	1877	0 10	12	....	....	....	....	....	....	....	....	....	....	....	.....
Sierra Nevada, g. s.	Nev.	3,650	10,000,000	100,000	100	2,050,000	July	1878 1 00	102,000	Jan.	1871	1 00	10	....	....	....	....	....	....	....	....	....	....	....	.....
Silver King	Cal.	.....	.....	.....	.....	.....	.....	.....	400,000	Aug.	1878	0 50	....	....	....	....	....	....	....	....	....	....	....	....	.....
Standard	Cal.	.....	.....	50,000	.....	50,000	July	1878 1 00	450,000	Aug.	1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	.....
Tip Top	Ariz	1,500	.....	100,000	.....	120,000	Aug.	1878 50	.....	.....	.....	.....	....	1⅝	....	....	....	....	....	1¾	....	....	....	....	....	40
Yellow Jacket, g. s.	Nev.	1,200	12,000,000	120,000	100	3,798,000	Sept.	1878 1 00	2,184,000	Aug.	1871	2 50	....	....	....	....	....	....	....	....	....	....	....	....	.....
McClinton	Cal..	1,000	.....	0,000	....	.....	.....	.....	.....	.....	.....	.....	....	....	....	....	....	....	....	....	....	....	....	....	.....
.....	.....	.....	.....	.....	..

Since the report of Mr. Ashburner was made, the company produced, in September, $46,269.84, at a cost of less than $17,000. For the first half of October a clean-up of $23,600 was made. Of this amount $17,000 is here, and the balance (the product of the sulphurets) is on the way here. These results not only confirm Mr. Ashburner's estimates, but even exceed them.

THE ISABELLA MILL AND MINING COMPANY.

We have received from Mr. S. G. Holbrook, Vice-President of the Isabella Mill and Mining Company, of Globe District, Arizona, to which we made reference in these columns last week, some information concerning the present condition of the concern. Mr. Holbrook and Mr. J. F. Spence, President of the East Tennessee Wesleyan University, inform us that the company has not a United States Patent for the property, but applied for one some months ago. The owner of the property, Col. H. G. Bixby, has donated 15,000 shares of the stock to the Tennessee Wesleyan University. This stock, we are informed, is held by a Trustee, and is not being sold. The stock offered for sale is some furnished by Col. Bixby as working capital; no definite amount is put up for this purpose but the vender, in a fraternal way, we presume, says he will put up whatever is necessary to develop the property. As the company has, as we are informed, a five-stamp mill now completed and running, and expects to be able to declare a $50,000 dividend early in December, the amount of working capital to be put up is not expected to be large, and if a five-stamp mill can earn $50,000 net profit per month, the ore must indeed be rich.

We are informed by Mr. Holbrook that during the past three months forty men have been at work sinking shafts on the different claims and erecting the mill. Very rich ore has been found in some of the claims, and the managers are very sanguine of success, and, we need scarcely add, we certainly hope they may attain it. The mines are represented as being very rich, and they are situated in a rich district. We must, however, repeat, what we have already said, that more and better information concerning them is called for than that given the public in the company's prospectus. A full report by Keyes, Ashburner, or Jannin would certainly command more confidence than the opinions of interested parties or of ministers in the Church on matters foreign to their calling. Some responsible legal opinion upon the question of title should also be given. With this enlightenment the public could decide whether there is really $1,000,000 of value or not in the very slightly developed property as it stands to-day.

We are informed by Mr. Spence that hereafter the church will take no part in selling the stock, but that the vender, Col. Bixby, will himself attend to this. We congratulate the church or the managers of the company upon this decision; for we only echo public opinion when we say that neither a church nor ministers of religion can engage in business of this kind without bringing discredit upon their sacred cause.

We also merely repeat the sentiment universal among business men that when an individual uses his religion as a business advertisement, it is so generally done to cover some questionable transaction that it requires information more explicit than usual about the property, its title, its management, and the distribution of its stock to remove this impression of a common experience.

The managers of the East Tennessee University have a natural and laudable desire to secure so large an endowment for their institution; but the profane public prefer to look upon the vocation of the church ministers and institutions as the spiritual and intellectual education of its followers, and not the conducting of secular business, and more particularly of a business which, in its early stages, is extremely hazardous. Any failure in the property to make good the investment ($1,000,000), which is enormous for a practically undeveloped property, or any errors in the management, whether they be through ignorance or dishonesty, must inevitably be thrown back at religion and the church by the enemies of each. We can, therefore, only repeat our entire disapprobation of this manner of bringing out a mining enterprise, and urge the publication of competent evidence as to the value of the property, and we believe the name of any one of the well-known experts mentioned above would go far to inspire that confidence which the prospectus already issued has done nothing to secure.

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

Name of Company	Closing Quotations						Opening
	Oct. 25.	Oct. 26.	Oct. 28.	Oct. 29.	Oct. 30.	Oct. 31.	Nov. 1.
Alpha	14⅛	14	13⅝	13½	15	14⅛	15
Alta	14	14	13¾	14½	15	13¾	13
Argenta	.....	7½	7⅛	6½	6	7	.....
Bechtel	.....	1¼	1¼	1¼	1¼	1½	.....
Belcher	8⅝	8⅞	8¾	8⅞	8¾	9	8⅝
Belle Isle	.....	1½	1½	1½	1⅞	1½	.....
Benton	.....	7½	7½	7	7	7	.....
Best & Bel	23¼	22¾	23¾	23¼	24¼	24¼	24¼
BlackHawk	.....	1	1	1½	1¼	1¼	.....
Bodie	19¾	20	21	20¾	20⅝	.....	.....
Booker	.....	1¼	1¼	1	1	1	.....
Bullion	12¼	11⅞	11¼	12	16½	14	14⅝
Bulwer	.....	14⅞	16¾	16¾	16¾	16¾	.....
Caledonia	5⅛	5⅛	5	4⅝	4¾	5	5
California	11⅞	11¾	11¾	11⅝	12	11¾	11⅝
Chollar-Pot	61	60	59	58½	63	60	60
Confidence	11	10¾	10½	10¼	10	10½	.....
Con. Imp	.....	.....	.....	.....	.....	.....	1
Con. Va	11⅞	11⅞	11¾	11⅝	12	12	12
Crown P'int	10¼	10¾	10½	11	11¼	10½	10½
Endowm'nt	.....	60c.	60c.	60c.	60c.	60c.	.....
Eureka Con	39	37¾	37	34¾	33	36	.....
Exchequer	5⅞	5¾	5½	5⅝	7	6¼	6⅜
Goodshaw	.....	¾	¾	¾	¾	¾	.....
Gould &Cur	17	17	16	16½	17	16¾	16¾
Grand Prize	6⅛	6⅝	6⅞	6⅝	6⅝	6⅜	.....
Hale & Nor	24¾	24½	23½	24¼	24⅛	23¼	23
Hamburg	.....	.....	.....	.....	.....	.....	.....
Homestake	.....	10	10	10	10	10	.....
Hussey	.....	50c.	30c.	30c.	30c.	30c	.....
Indep'd'nce	.....	2½	2½	2½	2½	2½	.....
Jackson	.....	10	9	9	9	9	.....
Julia Con	6¾	6⅝	6¾	6⅝	6⅞	6⅝	6¾
Justice	8¼	8¾	9	9⅝	9⅝	9⅛	9⅛
Kentuck	7	7	6¾	7	7⅛	7⅛	7⅛
Kossuth	.....	30c.	30c.	30c.	30c.	30c.	.....
Leopard	.....	1	1	1	1	1	.....
Leviathan	.....	90c.	90c.	1	90c.	90c.	.....
Manhattan	.....	.....	.....	.....	.....	.....	.....
McClinton	.....	¾	¾	¾	¾	¾	.....
MeadowVal	.....	.....	.....	.....	.....	.....	.....
Mexican	58½	58¼	56¾	58½	61	63½	67½
Mono	.....	5¼	5¼	5¾	6	6	.....
Navajo	.....	1	1	1	1	¾	.....
North. Belle	10⅜	10⅝	10¾	10¼	10½	10½	.....
Ophir	48	48	46¾	47	49¼	50	51
Orig. K'ys'e	.....	7	7	7	7	7	.....
Overman	26½	25½	24¾	24¾	27	26	27
P. Sheridan	.....	1	1	1	1	1	.....
Ray. & Ely	6	6	6	6¼	6½	6½	.....
Richer	.....	1¾	1½	1½	1½	½	.....
Savage	23½	23¼	22	23¼	23¾	22¾	22
Scorpion	4¾	.....	4¾	4¾	5	.....	.....
Seg.Belcher	.....	.....	.....	.....	.....	.....	35
Sierra Nev	166	169½	165½	170	177*	180	†
Silver Hill	2½	2½	2¼	2¼	2⅝	3⅜	3½
Silver King	.....	.....	.....	.....	.....	.....	.....
Summit	.....	2	2	2	2	2	.....
Tioga	.....	2⅛	2⅛	2⅛	2⅛	2⅛	.....
Tip Top	.....	1½	1½	1½	1½	1¼	.....
Union Con	146	146	142½	147	154	150	156
Utah	33	32½	31½	34½	35	.....	36
Ward	.....	1½	1½	1½	1½	1½	.....
WashoeCon	.....	.....	.....	.....	.....	.....	.....
Wells Fargo	.....	½	½	1½	1½	1½	.....
Yel. Jacket	23	23¼	22	22½	23	23½	23

* Asked. † 182@189.

The quotations in the above list generally open at fairly-maintained quotations, and the majority of stocks are considerably in advance of the prices prevailing last week.

The *Commercial Herald* of Oct. 24th says of the market: "The mining stock market has been in a variable condition during the period under review, for the most part showing a weakening among the most favored as well as the least, the volume of business being fully equal to the previous week. The market is being very much crowded with wild-cat stocks, large blocks of the various claims apparently changing hands; however, a considerable want of confidence is manifesting itself in every direction, showing that the expected good bonanza results in the near future of a number of the Comstock companies are not likely to be realized, either as to time or extent, though many think the operations at present are made with a view to break down prices to still lower figures. It was a great surprise to the public to learn that the directors of the Sierra Nevada levied an assessment of $3 per share, being larger than usual, and by a mine that was so soon to show a bonanza of extraordinary size. To say the least, it looks very strange, and of course it has a very damaging effect upon the market."

San Francisco Stock Exchange Sales.—We take the following from the *Commercial Herald* of Oct. 24th: "From our carefully-compiled record of the sales in the San Francisco Stock and Exchange Board, we extract the following interesting figures for the first nine months of 1875, 1876, 1877, and 1878:

	1875.	1876.	1877.	1878.
Jan	$42,563,475	$28,701,785	$18,355,160	$9,593,655
Feb	19,435,535	17,204,105	9,393,545	5,610,875
March	15,737,640	35,925,385	9,534,805	10,922,485
April	14,657,505	20,736,485	9,160,550	7,842,635
May	19,949,615	10,788,195	5,786,920	8,133,365
June	12,641,485	12,643,440	10,874,985	6,197,985
July	20,110,715	17,332,845	5,633,965	7,208,450
Aug	18,463,680	14,900,560	8,090,785	22,909,160
Sept	.....	16,639,775	8,098,235	26,442,360
Totals	$163,559,650	$174,872,575	$84,928,950	$104,861,570

"It will be observed that the sales for the months of July, August, and September exceeded by $8,000,000 the transactions during the first six months of the current year."

ASSESSMENTS, with dates when delinquent: Sierra Nevada, $3, November 27th; McCracken Con., 50c., December 6th; Gen. Lee, 25c., December 23d; Raymond & Ely, $1, November 23d; Gila Con., 3c., November 18th; Jupiter, 10c., November 21st; Albion, 25c., November 19th; May Flower, 15c., November 18th; Starr King, 20c., November 21st; Confidence (Tuolumne County), 50c., November 20th; El Dorado (Storey County), 25c.; November 22d.

The Silver King Mining Co. has declared its ninth monthly dividend of $50,000.

NEW INCORPORATIONS.

We note the recent organization of the following companies in addition to those announced in our issue of September 28th:

Alpha Hydraulic Mining Co	Cal	$1,000,000
Alta Mining Co	"	6,000,000
Amador Gravel Mining Co	"	1,000,000
Bodie Leon Mining Co	"	10,000,000
Bright Star Gold Mining Co	"	10,000,000
Brown Monster Mining Co	"	5,000,000
Bulletin Mining Co	"	10,000,000
Cameron Mining Co	"	5,000,000
Charter Oak Mining Co	"	6,000,000
Chief of the Hill Tunnel Co	"	10,000,000
Empire Cons. Mill and Mining Co	"	4,000,000
Engelke Gold and Silver Mining Co	"	5,000,000
Indicator Mining Co	"	5,0 0,000
Jupiter Mining Co	"	6,400,000
Lord & Robinson Mining Co	"	5,000,000
Maryland Mining Co	"	6,000,000
Nevada City Mining Co	"	3,000,000
Nevada County Mining Association	"	500,000
Oakland Cons. G. and S. Mining Co	"	6,000,000
Pemberton Mining Co	"	6,000,000
Reno Mining Co	"	6,50 ,000
Rough and Ready Con. Mining Co	"	10,000,000
Santa Mina Mining Co	"	6,000,000
South Belvidere Gold and Silver Min. Co	"	10,000,000
Sultan Hill Mining Co	"	10,000,000
True Blue Mining Co	"	10,000,000
Blue Bell Copper Mining Co	Nev	1,000,000
Con. Astor Mining Co	"	10,000,000
Con. Superior Mining Co	"	10,000,000
Fairmount Mill and Mining Co	"	5,000,000
Fairfax Mining Co	"	10,000,000
Flowery Mining Co	"	10,000,000
Garber Mining Co	"	10,000,000
Keating Mining Co	"	10,000,000
Marietta Mining Co	"	10,000,000
Mary Ann Mining Co	"	10,000,000
Mountain Silver Mining Co	"	10,000,000
Mount Rose Mill and Mining Co	"	10,000,000
North Bonanza Mining Co	"	10,000,000
North Gould & Curry Mining Co	"	10,000,000
North Keystone Mining Co	"	10,000,000
North Union Mining Co	"	100,000
Numa Mining Co	"	10,000,000
Pioneer Mining Co	"	10,000,000
Red Jacket Cons. Mining Co	"	10,000,000
Tiger Gold and Silver Mining Co	"	10,000,000
Thornton Mining Co	"	10,000,000
Uncle Sam Mining Co	"	5,000,000
Warsaw Mining Co	"	10,000,000
Azure King Mining Co	Ariz	10,000,000
Flagstaff Gold and Silver Mining Co	"	10,000,000
San Pedro Mining Co	"	.....
Giant & Old Abe Mining Co	Dak	2,000,000
Deadwood Mining Co	"	150,000
Highland Mining Co	"	2,000,000
Owyhee Mining Co	Idaho	5,000,000
Warren Water Works Co	Ohio	100,000
The Albert Brick, Lime, and Cement Co	N. S.	.....
Etna Coal and Salt Co	W. Va	100,000

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